

# Railway Age

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## Do Railroads Want College Men?

A GRADUATE of one of our colleges, assuming that there was a real opportunity in the transportation field, took a special two-year post graduate course in transportation at one of the leading universities. While at college he worked for railroads during four summer vacations—one vacation each as a trackman, brakeman, fireman and shopman. He was graduated last year, is 23 years old, and there is nothing objectionable about his personality. One of his friends who has followed the various discussions in the *Railway Age* on the college man and the railroads, undertook to help him find a position on a railroad. The young man was willing to start in anywhere in any department, just so it was on a railroad. His friend had been connected with the railroads for many years, holding important positions in that service; he has many friends working for railroads, and assumed that the roads really wanted to get promising young men with college training. He got in touch with the chief operating officers of four large railroads, but without results; the young man is now working in a machine shop in New England. The industry with which his older friend is connected is one of some importance and regularly takes on 25 college graduates every year. An exceedingly large percentage of these young men remain with the company and yet it feels that it hardly has a sufficient number of college men in its ranks. The question is whether a company of this kind which serves the railroads, has any greater need for college men than have the railroads themselves. Do the railroads really want specially trained college men?

## Do We Want the Next International Congress?

NORTH AMERICA is the greatest continent in the world from a railway standpoint. It has more than two-fifths of the route mileage of the entire world. Moreover, it is here where railroading in many important respects—particularly in the transportation of great quantities of bulky freight at low rates—has made its greatest progress. Are our railroad officers proud of their achievement—as they may well be? If so, are they proud enough to want railway men from all over the world to see what they have done after a century of railroading? In short, would they like to have the International Railway Congress meet here in 1930 and, if so, are they willing to take the necessary steps to make sure that the Congress will come here? So far, it must be admitted, not much has been done. Comparatively few American railroads hold memberships in the International Railway Congress Association. Moreover, a number of roads which do belong to the association have not so far made any plans to have delegates present at the London Congress this June. Other member roads are planning to send delegates, but fewer than the quotas allowed them under the constitution of the association. Now, frankly, this is a rather un-

promising start. The Congress at London this summer will decide on the place of meeting five years hence. There is almost sure to be a contest for the place of meeting. Indeed, it is reported that Madrid has already been "tentatively" decided upon. Obviously, then, the first step to be taken in a movement to secure the next Congress for this country is the sending of a large delegation to London this summer. Will the roads which are already members of the International Association plan at once to send maximum delegations to London? Will the roads which are not members—membership cost is nominal—join now, and plan to send the maximum delegation allowed them?

## Heavy Loss of Passenger Business

THERE is one very important obstacle to reductions of railway rates which has developed principally since the war, but which seldom has been mentioned in discussions of this subject. This is the enormous loss of passenger business which the railways have suffered due to the increased use of automobiles. The use of automobiles seems likely to continue to increase. Therefore, there is apparently no remedy for this loss of business. Attention ought to be called to it, however, because, as already indicated, it is one of the principal reasons why railroad rates at present levels are made necessary. The railways must have sufficient revenues to pay their operating expenses and taxes and a reasonable net return. They must continue to provide passenger service for those who want to use it even though there is a decrease in travel by railroad. Since the earnings from passenger business are not only relatively but absolutely declining the roads must get higher rates for rendering both freight and passenger service than otherwise would be necessary. Until 1920 passenger business increased as steadily as freight business and reached its peak in that year. It was showing some signs of ceasing to grow before this country entered the war, but troop movements and general business activity stimulated its growth until 1920. Since then its decline has been one of the remarkable phenomena in the entire field of transportation. The table published on the following page presents the facts regarding passenger traffic, service and earnings of the Class I roads in the five years 1920 to 1924, inclusive. It will be seen that passenger business declined sharply in the years of depression 1921 and 1922, increased somewhat in 1923 and then declined again in 1924. The number of passengers carried in 1924 was 24 per cent less, and passengers carried one mile 23 per cent less, than in 1920. Meantime the railways rendered practically the same passenger service as before. They reduced it slightly in 1921, 1922 and 1923, but in 1924 the number of passenger train miles was only about one-half of one per cent less than in 1920 and the number of passenger car miles was actually greater. This resulted in sharp reductions in the average number of passengers per train and per car. The average per train in 1920 was 84 and in 1924 only 65.

The average per car in 1920 was almost 20 and in 1924 only about 15.

The effect upon earnings produced by this decline of passenger business is partially shown in the table. The average passenger rate has been higher since 1920 than in that year, but passenger earnings reached their maximum in 1920, and in 1924 were almost 209 million dollars less than in that year. But the statistics given in the table do not disclose the entire loss of revenue suffered. If the railways, with the average rate in effect in 1924, which was  $8\frac{1}{2}$  per cent greater than in 1920, had handled as much passenger business as in 1920, their total revenues from it would have been 317 million dollars larger than they were. This exceeds the total cash dividends paid by the Class I roads in any year since 1917. It is entirely logical to assume that in the absence of new influences causing an interruption of the growth of passenger business it would have been larger in 1924 than in 1920. Never but once before in the history of American railroads did their passenger business show a decline after the passage of four years, and in that instance the decline was very small.

What the facts show is that passenger business and earnings have declined greatly, while there has been no corresponding reduction of service, and that in consequence, although there has been no substantial reduction of rates since 1920, earnings per train mile and per car mile have sharply declined. There has been a general reduction in freight rates since 1921 and no general reduction of passenger rates, but in 1921 passenger earnings

to be most needed now is the more general introduction on lines of thin traffic of means of rendering the service still required which will be less expensive than the local train pulled by a steam locomotive. At present the chances seem better of devising means of handling passenger business more cheaply than of competing successfully with the automobile for it.

## No Bad Legislation— An Object Lesson

THE 68th Congress went out of existence on March 4 without having passed any legislation seriously adverse to the railways. Furthermore, during its life no reduction was made in railway rates.

It would have been hard to have believed on the day after the national congressional election in 1922 that the statements in the foregoing paragraph could have been made in March, 1925. In the political campaign of 1922 the "exorbitant" rates being charged by the railways and every important provision of the Transportation Act were the objects of attack in every part of the country, especially the west. The election in that year sent to Congress a large number of senators and representatives pledged to use their utmost endeavors to secure legislation which would have been ruinous to the railways. They held the "balance of power" between members of Congress

PASSENGER TRAFFIC EARNINGS AND RATES, 1920-24

	1920	1921	1922	1923	1924
Passenger train miles.....	556,243,000	545,310,000	530,971,000	549,841,000	553,253,000
Passenger car miles.....	3,583,935,000	3,464,981,000	3,402,616,000	3,575,443,000	3,632,032,000
Passengers carried.....	1,232,846,000	1,034,161,000	966,489,000	985,908,000	*930,425,000
Passengers carried one mile.....	46,847,534,000	37,338,959,000	35,507,222,000	38,005,922,000	*36,186,673,000
Average passengers per train.....	84	68	67	69	65
Average passengers per car.....	19.79	16.42	15.98	16.29	*15.21
Total passenger revenue.....	\$1,285,395,081	\$1,152,995,583	\$1,075,262,223	\$1,147,365,989	\$1,076,615,373
Average rate per passenger per mile.....c.	2.744	3.088	3.028	3.019	*2.975
Average journey per passenger.....miles	.38	.36	.37	.38	.39
Average earnings per passenger train mile.....	\$2.31	2.11	2.03	2.09	1.95
Average earnings per passenger car mile.....	\$0.359	.333	.316	.321	.299

\*Statistics for December, 1924, estimated.

were  $29\frac{1}{2}$  per cent as great as freight earnings while in 1924 they were less than 25 per cent as great.

It is commonly assumed that the passenger business the railroads have lost to the automobiles has been principally short haul business. It would appear that this has not been true within recent years. The average journey per passenger by rail increased from about 30 miles in 1914 to 38 miles in 1920. This increase in the average journey was no doubt due to the fact that during these years the traffic lost was principally for short distances. Since 1920, however, the average journey has both declined and increased and is now only slightly greater than it was then. It would appear that as hard surface highways have been built all over the country the losses of short distance and long distance business have been about relatively equal. Have the railways been justified, in the face of this loss of business, in maintaining so much passenger service? They have lost business to the automobile largely because it can be used at any time, and on most lines if the railways had reduced their service they would have lost still more business to the automobile. Furthermore, of course, on many lines they have encountered strong opposition from the public and regulating authorities to reductions of service.

The problem presented to the railways by the loss of passenger business is a very important one, but the solution, if there is one, is not yet in sight. What appears

actually representing the two large political parties. Some of these radicals were democrats and some republicans, but regarding railway matters they were all radicals, and numerous other members of Congress shared their views regarding these matters.

Within three weeks after the congressional election in 1922 the average price of all railway stocks declined \$13 a share on the New York stock exchange. This shows the interpretation put upon the results of the election by owners of railway securities and other investors. During both of its sessions the 68th Congress was flooded with anti-railway measures. These included bills to repeal Section 15-A and the labor provisions of the Transportation Act, to repeal all provisions of the act, to abolish the Pullman surcharge, to reduce freight rates on farm products to the prewar basis, to change entirely the method of making railway valuations, to prohibit the charging of a lower rate for a longer than for a shorter haul and so on ad infinitum.

Several of the most harmful of these bills had strong backing and seemed sure to pass. The only measure of any importance which was passed was the Hoch-Smith resolution directing the Interstate Commerce Commission to investigate the matter of readjusting freight rates with a view to reducing rates on farm products. It was being loudly complained when the 68th Congress was elected that the railways were "guaranteed" and were earning



excessive profits. The net operating income earned by them largely increased after that election and still no important railway legislation was passed.

There were various reasons for this outcome. The railways individually and in co-operation so exerted themselves to improve their service that, with the aid of the Regional Shippers' Advisory Boards, they made it better than ever before. The labor leaders who initiated most of the propaganda against the Transportation Act and private management made it possible to discredit the entire propaganda by advocating not only the Howell-Barkley bill, but government ownership of railways. General business conditions improved. In 1924, immediately preceding the national election, there were large advances in the prices of grain which made western farmers less disposed to attribute their troubles to false causes and to seek political remedies for them. Finally, in the national presidential election in 1924 the people, by an overwhelming majority, even in states which had elected radicals in 1922, made clear their opposition to radical policies; and continued increases in the prices of grain after the election showed the farmers they were due to economic causes and not to Wall Street manipulation for political purposes, as had been charged.

But this does not tell the whole story or perhaps the most important part of it. Confronted with the results of the election in 1922 and with the ominous proof it afforded of the state of public sentiment regarding railway matters, the railways, individually and collectively, at last began a real campaign to educate the public regarding the railroad situation and the railroad problem. They have continued it to the present time. In the number of railway officers who participated in it, in extent, intelligence and duration, it far exceeded any similar campaign ever carried on by the railways. Through the written and spoken word it reached many millions of people who never before had been reached with facts about railway earnings, expenses, taxes and net return, and about the needs of the country for good and adequate transportation service and what was being and must be done to meet these needs, and with discussions of the principles of railway regulation and what must be done to avoid government ownership. By openly advocating government ownership the enemies of private management helped to make the public mind receptive to such information and discussions.

It seems quite probable that if business conditions, and especially farm conditions, had not improved, the campaign of education carried on by the railways would not have prevented bad legislation. It seems certain, however, that, in spite of the improvement in conditions, some very injurious railway legislation would have been passed if this campaign of education had not been carried on. The people of certain states, especially in the west, were particularly interested in the railroad question, and it seems by no means improbable that the campaign of education regarding railway matters largely influenced the results of the national election in 1924. There was a long period of good business conditions in the United States before the war. Then, however, whether general business was good or bad, the tendency of both state and federal regulation was adverse to the railways. The railways had only begun then to awaken to the fact that public sentiment, and not Congress, legislatures or commissions, determines regulation.

Efficiency, economy and honesty in railway management are essential to the creation of a public sentiment which will cause a fair and constructive policy of regulation to be followed. But they are not enough. How is the public to know the railways are thus managed? Would any railway executive know how his own railway was

being operated and what the financial results were if he did not have the facts constantly reported to him? The public always has been and always will be told a lot of things about the railways. Railway managers long failed to adopt the means and provide for the expenditures necessary to give the public correct information. Therefore, it believed the misinformation it was given. In August, 1906, the month the Hepburn Act went into effect, the president of a certain railroad said to a newspaper man who called upon him for news: "Young man, it will be a waste of your time and mine to call upon me. I am not employed to tell the public about the business of this railroad." In fact, nobody was employed to tell the public about the business of that railroad, or most other railroads. And yet, the country was then aflame with anti-railway agitation which within a few years resulted in the passage by Congress and state legislatures of literally thousands of anti-railway laws.

Democracy is governed by public opinion and public opinion is made by discussion. Adequate discussion on behalf of the railways of the problems of railway management and regulation is just as essential to their progress and prosperity as efficiency, economy and honesty in management. This was illustrated by the flood of adverse legislation passed when railway officers did not adequately discuss the problems of management and regulation. It has just been illustrated again by the failure of adverse legislation to pass because railway officers did more adequately discuss railroad conditions and problems.

It is hardly conceivable that the lessons of experience soon will be forgotten or disregarded. The railways are "coming back" not only because they are being managed well, but because recently statesmanship has been shown in their management.

On the day their owners begin to forget the need for statesmanship, the destruction of fair and sound regulation will begin.

## Tradition or Science in Labor Relations—Which?

ON another page is an abstract of an address delivered before the New York Railroad Club by Dr. H. C. Metcalf on the subject of personnel administration, which goes about as near to the heart of the problem as anything yet published. Dr. Metcalf makes a plea for an objective attitude of mind—that is, real thought instead of prejudice—and for the employment of counsel who know the subject, rather than simply trusting to hit-and-miss methods put forward by well-meaning, but ignorant, amateurs.

This is not the entire content of his address—not by a whole lot—but these two points raise questions of procedure in attacking the personnel problem which are all too often ignored.

If a railroad needs a new bridge, it readily admits its powerlessness to design and build it without expert engineering assistance. A bridge is a costly structure. If it is not carefully designed and will not bear safely the loads put upon it, money put into its construction will be wasted. Complicated and difficult as bridge building is, however, with the assistance of men who have made a special study of its complexities, such work generally goes through to completion without serious mishap and, when completed, supports the loads expected of it.

But if the designing of bridges is complex, who can say that dealing with human beings is simpler? There is sound sense in Dr. Metcalf's plea that all the knowledge

which science can bring should be applied in solving the personnel problem.

Now regarding the objective attitude toward the problem—just what does this mean? Well, a certain economist told not long ago of having visited recently an electric power plant in a large city where he was shown the great battery of turbine-driven generators. It happened that he had visited this same plant about twenty years previously and at that time all the generators were driven by reciprocating engines to which they were attached by belts. He turned to the engineer who was conducting him through the plant. "What," he asked, "have you done with those beautiful engines you used to have here, with the big flywheels and the shiny brass work?" "Oh," answered the engineer, "we scrapped them. These turbines are twice as efficient." "But," queried the economist, "when you wanted to introduce these turbines, did no one say that the reciprocating engines were well made; that competent men had designed them and that the machine which made possible the supplanting of the kerosene lamp was good enough for anybody?" "Why no," the engineer answered, "if any one comes along with a more efficient machine for producing electricity, we first give it a thorough test to make sure that it is really better than what we have and, if we find that it is, we install it."

"How different it is in the field of human relationships," said the economist in telling the story. "The engineers are free to experiment and if they find some device or method better than the one they now use, they are free to scrap the old and install the new. If I, on the other hand, tell business men that they are in the final analysis responsible for unemployment and that it is up to them to remedy it, many of them dismiss me as a radical without further thought. If, on the other hand, I talk to a group of government-ownership fanatics and tell them the truth about the railroads—that they are the most efficient industry in the country; that they are looking out for the general welfare of their employees and the public to a much larger extent than many other industries for which government ownership is not advocated, I am denounced as a reactionary. There seems to be no place in society for the man who looks upon problems of human relationships from an unprejudiced, scientific point of view. People will leave without question the solution of their mechanical problems to technicians who know the business, but they will not permit economists, sociologists, psychologists and political scientists to solve their problems of getting along together. In this field they prefer to follow their prejudices blindly."

Now we rather think our economist friend has just about hit the nail on the head. The *Railway Age* is not committed to any one method of attacking the problem of human relationships in the railroad industry, but it does believe that, if any solution is to be found, there must be much experiment—and experiment entirely free from prejudice. It is entirely possible that the solution of the problem does not lie in either autocratic control by the management or in extension of power of the old-fashioned unionism which recognizes no responsibility but that of securing high wages and short hours for its members. Where does the solution lie then? In the company union, in employee representation, in union-management co-operation, in budgeting, in the flexible working day? Who knows? The important thing is that all such experiments now being conducted should be watched closely and without prejudice and that other experiments of equally fundamental nature, if any promising ones suggest themselves, be freely undertaken.

The problem is serious enough from every point of view to make us all ask ourselves whether or not the time

has come when belief based on nothing but tradition and prejudice must be supplanted by some really scientific investigation.

## Books and Articles of Special Interest to Railroaders

(Compiled by Elizabeth Cullen, Reference Librarian, Bureau of Railway Economics, Washington, D. C.)

### Books and Pamphlets

*The Gateway Dinner Honoring the Railroad Presidents of St. Louis.* Published by the National Bank of Commerce in St. Louis. 47 p.

*A Paper on Railway Economics*, by S. C. Ghose. 108 p. Published by Book Company, Calcutta, India. Dec., 1924.

*Pennsylvania Railroad System and Allied Lines Federation No. 90, et al., vs. Pennsylvania Railroad Company, Samuel Rea, W. W. Atterbury, et al. Decision of the Supreme Court of the United States* [Involving the right of a railroad company to require the employees' representatives to be its own employees]. March 2, 1925. 12 p. Published by Government Printing Office.

### Periodical Articles

*A Review of Transportation in 1924.* Finance and Industry, Feb. 28, 1925. p. 49, 122.

## New Books

*History of the Portland Cement Industry in the United States.* By Robert W. Lesley, first vice-president, Portland Cement Association. 330 pages. 6 in. by 9 in. Illustrated. Bound in cloth. Published by International Trade Press, Chicago.

This book was prepared under the auspices of the Portland Cement Association, Mr. Lesley being the chairman of a "Committee on History" which included also John B. Lober, president of the Vulcanite Portland Cement Company and George S. Bartlett of the Universal Portland Cement Company. The scope of the book is broader than that indicated by the title since it includes also considerable information of a statistical nature concerning the Portland cement industry which cannot be classed as historical. However, this adds rather than detracts from the value of the book which contains an immense fund of information of interest to the user of Portland cement. The author is to be commended for the entertaining manner in which the subject is presented. The development of a great industry is the story of personal achievements, therefore, the book deals in no small measure with biographies of the pioneers and leaders in this field, a feature which adds greatly to reader interest. The arrangement is both chronological and topical, commencing with chapters dealing with early experiments with hydraulic cement in which discussions and frequent quotations from historic source material evidence a conscientious effort to arrive at the true facts but taking care to show where uncertainty or controversy exists. Subsequent chapters take up the subject from the standpoint of various phases: mechanical, commercial, scientific, etc. The latter part of the book is devoted primarily to the origin and development of the Portland Cement Association. An appendix presenting brief statements of the corporate history, personnel, capacity, plants, etc., of the various Portland cement companies should prove of particular value to the cement users.



# Signaling Two Tracks to Capacity

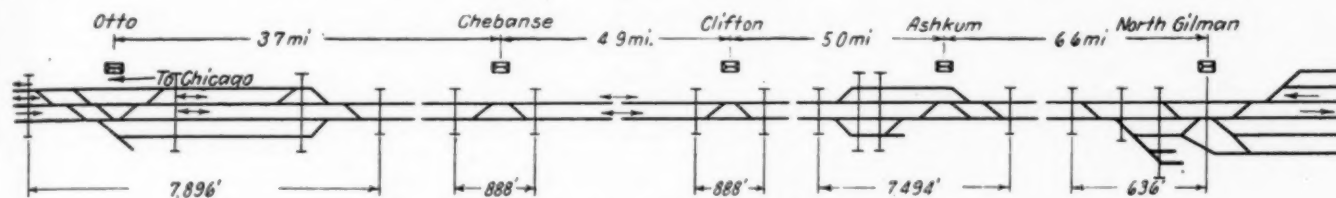
*Illinois Central installs color-light signals on twenty miles of double track with no normal direction*

By H. G. Morgan  
Signal Engineer, Illinois Central, Chicago

**F**OLLOWING the extension of its three-track road to Otto, Ill., 60 miles from Chicago, the Illinois Central has provided a system of signaling and interlocking for the adjoining section of double track which has a number of interesting features. At Gilman, Ill., 80 miles from Chicago, the double track main line

may move with equal facility in either direction on either track. The control of all movements is in the hands of the levermen at the towers so that operation is by signal indication without train orders.

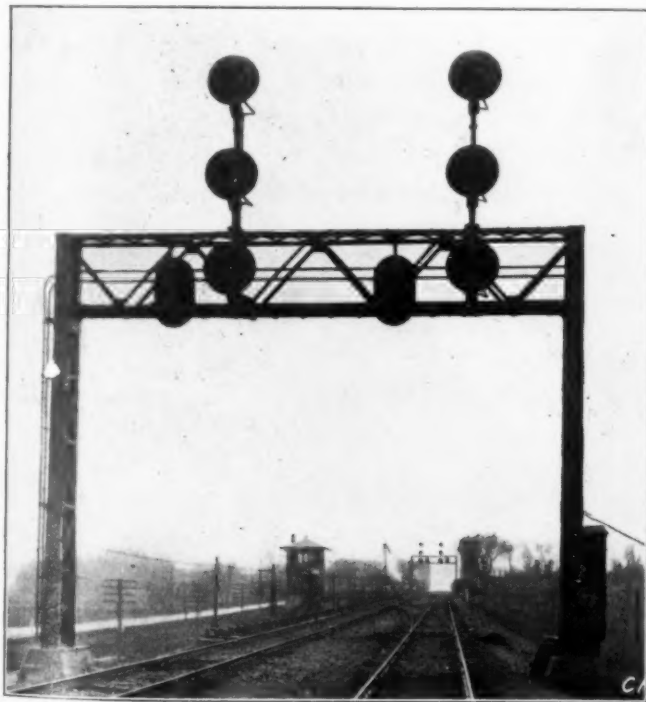
The sections of track between interlocking plants are provided with entrance signals at each end, which in addi-



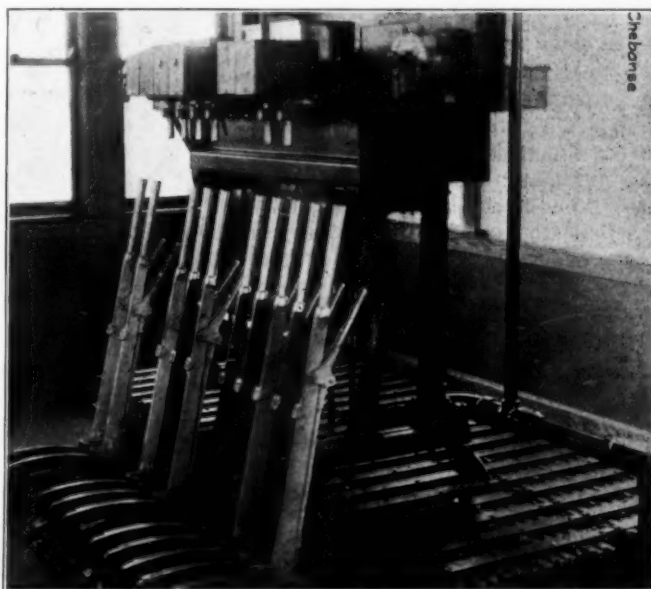
Layout of 20-Mile Section of Track Signaled Both Directions

from Memphis, Tenn., and New Orleans, La., and the single track main line from Springfield, Ill., and St. Louis, Mo., converge, forming a very busy 20-mile section of double track between Gilman and Otto. To increase the capacity of this double track section, inter-

locking plants, in addition to their function as automatic block signals, serve as traffic direction signals. In order to let a train in any section the operator at the entrance end must secure an unlock from the operator at the leaving end, permitting him to clear the entrance signal and making it impossible for the operator at the other end to clear his entrance signal for a train in the opposing direction.



Chebanse Interlocking Showing Two Cross-Overs and Both Home Signal Bridges



Typical Electro-Mechanical Interlocking Located at Chebanse

locking plants with No. 18 crossovers were provided at Otto, Chebanse, Clifton, Ashkum and North Gilman, at approximately five-mile intervals.

Both tracks were signaled in both directions with block spacings permitting following moves at one-mile intervals so that there is no normal direction of traffic, but trains

Where there are switches between interlocking plants these are locked electrically and in case one of the switches is to be used it must be unlocked by the nearest interlocking tower operator, therefore an absolute check is provided for all train movements between towers.

## Running Time Has Been Decreased

This system of operation has greatly reduced train delays. There are 22 scheduled passenger trains and two

local freight trains daily and from 30 to 40 through freight trains. Under the previous arrangement with standard double track automatic block signaling the average running time of freight trains was considerably longer than at present. It has also been found that the handling of the local freight has been facilitated, as trains which are to pass it are simply run on the other main track to the next tower, and the local does not have to clear the main.

A comparison of the time of through freight trains under the old and new arrangements shows the following:

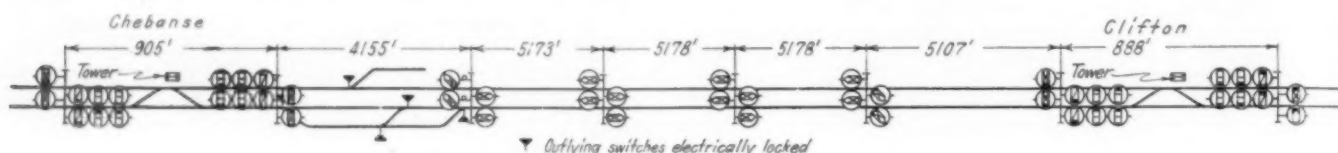
	August, 1922	August, 1924
Trains northward .....	472	417
Trains southward .....	471	449
	943	866
Average time northward .....	60 min.	51 min.
Average time southward .....	74 min.	50 min.

These two months represent the same total tonnage, that for August, 1924, being about two per cent greater than for August, 1922. The average tonnage per train under the new arrangement was 11 per cent in excess

The light signals have the light units in a triangular group. The red units are at the bottom of each triangle so that a yellow or green light displayed by one signal is slightly out of vertical line of the other two red lights. This feature, thought to be objectionable at first, has proved to be an advantage in making the yellow or green light more distinctive. All light signals are Union Switch & Signal Company Type-R, each unit being provided with a 10-volt, 18-watt double filament lamp, burned at 8 volts or less. Lamps in home signals at interlocking plants are burned at approximately half voltage at night, a dimming switch being provided in the tower. This prevents blurring of the three lights in a vertical row.

#### Siding Switches Operated From Towers

All important outlying siding switches are operated by power driven switch machines controlled from the towers. Sidings on each side of the mains at Otto extend a mile in the mechanical connections to the tower, the south switches being power driven. Power is obtained from batteries at the switches, with remote control from the



Signaling of Typical Section Clifton to Chebanse

of that handled under the old arrangement. This increase of tonnage per train was made possible by the reduction of grades elsewhere on the district.

Written train orders are not required except under unusual circumstances. A check of the first 26 days of February, 1925, shows that only two written train orders were issued during that period.

#### Signaling Between Towers

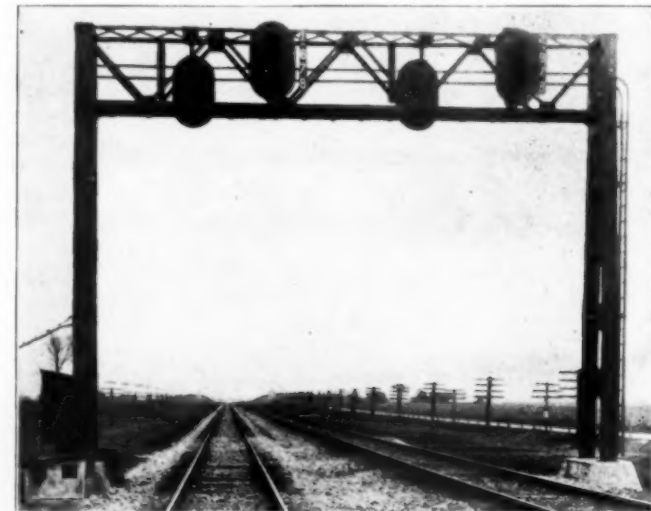
The traffic direction entrance signals for one direction are mounted on the opposite side of the bridge from the interlocking home signals for the other direction as shown in the illustration of Chebanse. The signals differ from the automatic block signals only in the fact that they have no number plates. Trains may not pass these signals when a stop indication (red light) is displayed without train order or under flag protection. Two automatic block signals are mounted on each side of the signal bridges and are distinguished by number plates as shown in the illustration.

Track circuits extend from signal to signal. Two switch circuit controllers are used at each switch, one connected to each point arranged for shunting only. This means that except where highway crossing signals are installed, all control apparatus is located at the signal bridges. Two sets of five cells of Exide battery in multiple normally operate the line circuits and light all four signals on the bridge in the case of a power failure.

#### Typical Interlocking Plants

##### Consist of Two Crossovers

The typical interlocking plant in this arrangement consists of two No. 18 crossovers for facing moves in each direction. The plants at Chebanse and Clifton are typical, as shown in the illustration of Chebanse. Home signal indications are given by three light signals in a vertical row giving the same indication as a standard three-arm semaphore signal gives at night. Enginemen have not been obliged to learn any new indications at interlocking plants.



Typical Automatic Signal Bridge Showing Signals for Both Tracks for Both Directions

at the yard entrance are operated from the tower battery, the switch machines being geared down for slow speed operation to reduce the power required. These switch machines were the first of this type ever built. All switch lamps are electrically lighted from the signal power line.

#### Interlocking Plants

The three intermediate interlocking plants consist essentially of two No. 18 crossovers. The crossover



switches are mechanically operated and signals are of the color-light type. The interlocking machines are Union Switch & Signal Company electro-mechanical Type S-8, with S. & F. locking. Annunciators for both tracks in both directions are provided consisting of a single stroke bell to attract the leverman's attention, the location of the train being indicated on the diagram.

The interlocking at North Gilman is a General Railway Signal Company all-electric plant. Main wire runs are carried in a built up cypress trunking with concrete supports. Multiple conductor parkway cables are used for connections to the switch machines and terminate in a cast-iron terminal box mounted on a concrete riser. The interlocking battery, consisting of 55 cells of chloride accumulator Type-E5, capacity 89 a.h., is charged constantly by a Wooten motor-generator, duplicate charging equipment being provided.

A separate pole line was constructed for the signal control wires, the alternating current supply wires and the telephone. This line is built with creosoted pine poles spaced 132 ft. and carries two 10-pin crossarms. The top arm carries the two No. 6 copper wires for the 440-volt, 60-cycle transmission on the end pins, field side, and the two No. 9 bare copper telephone wires are on the end pins, track side. The control wires, which are No. 12 copper-clad, are on the bottom arm. At each feed the supply voltage is reduced to 110 by air cooled transformers of 200-watt capacity. Both the supply line and the telephone line are transposed and no interference has been experienced.

## Changes in Interstate Commerce Committees of Congress

WASHINGTON, D. C.

**N**EW chairmen of the Senate and House committees on interstate commerce, which handle most of the questions pertaining to railroad legislation, and several new members of both committees, have been chosen in connection with the organization of the Sixty-ninth Congress. In the case of the Senate the reorganization has already been effected, as the Senate was called into special session to confirm presidential appointments and consider treaties immediately after the adjournment, but in the case of the House the selections have been made by the committee on committees and are subject to approval by the House when the new Congress convenes.

Senator James E. Watson of Indiana, Republican, was chosen chairman of the committee on interstate commerce, succeeding Senator E. D. Smith of South Carolina, Democrat, who was elected to succeed Senator Cummins

by a coalition of the Democratic and La Follette forces in the last Senate. Senator La Follette had stood as the ranking Republican member of the committee and under the usual precedents would have been made chairman if the Republican organization had not decided on a policy of reading out of the party those of the "radicals" or "progressives" who had openly opposed the party at the last election, Senators La Follette, Frazier, Ladd and Brookhart, and of displacing them or taking away their party seniority in making their committee assignments. La Follette was left a member of the committee, but with only the rank of a minority of one. James S. Parker, Republican, of New York, was selected as chairman of the House committee on interstate and foreign commerce to succeed Samuel E. Winslow, of Massachusetts, who did not run for re-election to the new Congress.

Also, in the reorganization, one new member was added to each of the standing committees of the Senate, so three new members were added to the Senate committee, as there were two vacancies caused by the resignation of Senator McLean of Connecticut and the fact that Senator Elkins of West Virginia did not run for re-election. The new members are Senators Goff of West Virginia, Sackett of Kentucky and Pine of Oklahoma. Two new members were added to the House committee and there were two vacancies caused by the retirement of Chairman Winslow and Representative Sanders, who has become secretary to the President. The new members are J. D. Fredericks, of Los Angeles, Calif., T. J. B. Robinson, of Hampton, La., Thomas W. Phillips, Jr., of Butler, Pa., and M. C. Garber, of Enid, Okla.

There is some talk of the possibility of the House committee meeting in advance of the regular session, possibly in October, to give some advance consideration to questions of railroad legislation which are likely to be prominent in the next Congress, such as labor legislation and proposed amendments to the consolidation provisions of the transportation act, but nothing of this kind has been definitely decided. The Howell-Barkley bill was dropped at the last session but there is still talk of the possibility of some agreement being reached on some substitute for the labor provisions of the transportation act. Also it is expected that at the next session consideration will be given to the plan of amending the consolidation section so as to permit voluntary consolidations, subject to the approval of the commission, but without the requirement of a complete plan, as was proposed in a bill introduced by Representative Winslow.

Senator Watson was elected chairman of the Senate committee instead of Senator Cummins, who was formerly chairman, because the latter has become chairman of the judiciary committee. The list of committee assignments as prepared by the committee on committees of the Senate was approved by the Senate on March 9.



Vicksburg Route Baggage and Express Car—Built by American Car & Foundry Company

# Some of the Illinois Central Plans for Its Chicago Terminal\*

*Utilization of air rights, electrification of suburban and through lines, and convenience of location are important factors*

THE line first surveyed for the Illinois Central in Chicago lay along the south branch of the Chicago river from the then southerly limits to the central part of the city, and to a connection with the Chicago & Galena Union Railroad. The city council declined to consider any location other than that the railroad should intersect the lake shore at the foot of present 51st street and occupy the lake front northward from that point to the Chicago river.

Seventy-five years ago Michigan avenue was the aristocratic residence street of Chicago and the proposition to run a steam railroad along the avenue provoked strenuous opposition from the property owners who believed it would destroy the value of their investments. On the other hand the north and west wards had for years paid heavy taxes to protect the lake shore from the encroachments of Lake Michigan and that portion of Chicago gladly supported the lake front occupation plan. An ordinance was passed June 14, 1852, which carried with it a grant of a right of way 300 ft. wide through the public lands of the city, extending from Lake Park place (11th street) to Randolph street. Even with the grant of lands, the railroad company reluctantly accepted the ordinance.

By interposing a railroad between the city and the lake it was argued that the railroad would be obligated for its own protection to maintain breakwaters, dykes, and other protective devices, thereby securing the city from the lake storms, relieving it of very considerable expense. As the city grew and the limits were extended southwardly from time to time the obligation of the railroad to maintain lake front protection was extended automatically. Finally the railroad company assumed the obligation of constructing and maintaining the lake front protection from the Chicago river to 51st street, a distance of approximately six and one-half miles.

In 1850, Chicago had a population of 30,000. It was then thought that the lake front would be of little, if any, value to the city. With the increasing population it became apparent that the city must make use of Lake Michigan for transportation, and the lake shore for recreation purposes. Accordingly Harbor District No. 1, east of the Chicago river, and the lake shore north thereof, was established on July 28, 1913. Harbor District No. 2, extending from the southerly limits of District No. 1 to 16th street was established on April 2, 1916, and the lake front ordinance of July 21, 1919, extended the harbor limits from 16th to 31st streets, to be known as Harbor District No. 3.

The right of way between Randolph street and East 11th place consisted of an easement granted by the City of Chicago. From East 11th place south the railroad company acquired title in fee simple from individual owners to a right of way which included the riparian rights attaching thereto. The right of the railroad company to use the accretions to the shore line or to fill it in was con-

tested by the city. The differences of opinion which arose from time to time were not finally disposed of until the passage of the lake front ordinance of July 21, 1919.

## The Lake Front Ordinance of 1919

The lake front ordinance of July 21, 1919, is, in fact, a three-party contract entered into by the City of Chicago, the South Park Commissioners, and the Illinois Central and Michigan Central railroad companies. It confirms the provisions of the contract of 1912 between the railroad company and the South Park Commissioners, provides the harbor district demanded by the United States government, and grants the right to fill in certain submerged areas, to establish driveways, lagoons, bathing beaches, and recreational centers, and to construct viaducts over the right of way and tracks of the railroad company at East Roosevelt road, 23rd, 31st and 35th streets, Oakwood Boulevard and 43rd street, and subways at 18th and 47th streets, thereby giving convenient and adequate accesses to the park areas, the Field Museum, the new stadium, and to the newly created harbor district. The railroad company will construct the harbor approaches at 18th street (a subway) and viaducts at 23rd and 31st streets, the other park approaches to be built by the South Park Commissioners.

The federal, state and city authorities, the South Park Commissioners and the railroad company were vitally interested in the solution of the problem. It is needless to say that in an understanding of this magnitude there was no yielding on the part of any party. The future needs of the federal government had to be met; the ambitious civic plans of the city were given due weight; the wish of the South Park Commissioners to restore Chicago's lake front play ground to the people were guaranteed realization in the approximately immediate future; and the needs of the railroad for a more economically operated terminal are in process of fulfillment. The intimate partnership which the railroad company reluctantly accepted under the provisions of the original ordinance of June 14, 1852, has been reaffirmed by the lake front ordinance of 1919.

## Major Projects Which the Illinois

### Central Will Undertake

The following are the major projects which the railroad company will undertake to carry out under the provisions of the lake front ordinance:

- 1.—Fill in and reclaim submerged lands in the South Water street area and the lake shore between 16th and 49th streets.
- 2.—The reconstruction and enlargement of the suburban facilities.
- 3.—The rearrangement and reconstruction of the local freight terminal at South Water street, including the reconstruction of Randolph street viaduct, 1725 ft. long.
- 4.—The relocation and reconstruction of the through passenger terminal and office building with appurtenant

\*An abstract of a paper presented before the Western Society of Engineers, Chicago on March 10, by D. J. Brumley, chief engineer of the Chicago Terminal Improvements of the Illinois Central.



facilities, including the construction of a subway 680 ft. in length at the foot of 18th street.

5.—The installation of substations and overhead transmission and distribution systems in preparation for electrical operation after the tracks, platforms, and other facilities have been rearranged.

6.—The construction of additional tracks on the main line between the Chicago river and Matteson and also on the South Chicago, Blue Island, and Kensington branches.

7.—The relocation of the easterly end of the St. Charles Air Line which interferes with the development of the through passenger terminal.

8.—The construction of an elevated railroad making a separation of grades with other railroads, streets, avenues, alleys, and public places near 18th street, connecting the Illinois Central main line south with the Atchison, Topeka & Santa Fe, and the Illinois Central line west in the vicinity of Archer avenue and Canal street. This railroad will make it possible for north and south and western line railroads to make reasonable connections therewith for the purpose of reaching Harbor District No. 3, or the lake front through passenger terminal.

9.—The lowering of the plane of the tracks between 29th and 44th streets to a minimum elevation of plus four, thereby permitting most economical construction of viaducts by the South Park Commissioners at 31st and 35th streets, Oakwood Boulevard, and 43rd street. The raising the plane of the tracks between 43rd and 51st streets, thereby permitting a more economical construction of a subway by the South Park Commissioners at 47th street. These changes of grade involved the rebuilding of the breakwater for the major part of the distance, filling in the submerged areas to be occupied immediately, lowering or raising the eight main and other supplemental tracks under traffic, constructing additional tracks, reconstructing the signal system, relocating, diverting and lowering city sewers within the area affected, and installing protection at the sanitary district's 20-ft. discharge outfall sewer under the tracks at 39th street.

10.—To change the method of propulsion from steam to electric as follows:

The entire suburban service... On or before Feb. 20, 1927  
The freight service north of E.

Roosevelt Rd. .... On or before Feb. 20, 1930  
The freight service south of E.

Roosevelt Rd. .... On or before Feb. 20, 1935  
The through passenger service... On or before 1940 providing a given percentage of the railroads using the lake front passenger terminal are operating electrically at that time.

11.—Constructing three railroad accesses to Harbor District No. 3; harbor approach viaducts at 23rd and 31st streets and a harbor approach subway at 18th street.

12.—Permit other railroads entering Chicago to use the railroad accesses to Harbor District No. 3 and to use the lake front through passenger facilities either on terms mutually agreed upon or those established by the Interstate Commerce Commission.

#### Releases a Large Area for Air Right Development

The suburban and local freight terminals east of Michigan avenue and north of Randolph street cover an area of 65 acres which is admirably adapted for the same type of development as obtains in the central business district. The suburban service and local freight business can be adequately cared for below the level of Randolph street viaduct and the volume above the viaduct level with proper arrangement of east and west and north and south streets is susceptible of the highest type of develop-

ment which is authorized by the Chicago zoning ordinance.

The plans for the suburban and local freight terminals provide for releasing this area for air right development in the immediate future. Vehicular accesses to the local freight terminal and the air right development will be separated. The accesses to the former will be along the lower level driveways on Lake, South Water, and River streets and those to the latter from the upper level of Michigan avenue, and the connecting north and south streets.

A railroad terminal to best serve the purposes of a transportation machine must lie within easy and convenient reach of business centers and must provide adequate and uninterrupted means of transportation for suburban and through passenger service, and local freight business. In order that these three classes of business may be served adequately and without interference, they each should comprise separate and distinct units of the terminal development, have ample connections with other railroads for expeditious interchange, and proper provision for adequate vehicular traffic accesses and local transportation connections.

The suburban passenger terminal lies east of Michigan avenue along Beaubien Court, a north and south street, and extends from Randolph to South Water street. Convenient stations to the Loop district will be located at South Water street, Randolph street, Van Buren street, and East Roosevelt road. The entrance to the Randolph and Van Buren street stations will be by means of subways from the west side of Michigan avenue to the suburban station at each of these streets.

#### The Plans for Suburban Practically Settled

The plans for suburban operation are pretty well settled. The Randolph street terminal will first be constructed with eight station tracks of sufficient length to accommodate a train of ten cars of the new standard steel type. The operation of suburban trains on the main line south will be on tracks set aside exclusively for that service and the operation can be carried on without interference with that of the through passenger, freight or switching. From Randolph street to East Roosevelt road the operation will be confined to four main tracks; from East Roosevelt road to 53rd street, six main tracks; from 53rd street to Kensington four main tracks; and from Kensington to the southerly terminus of the electrified zone two main tracks. The South Chicago and Kensington & Eastern railroads will each have two main tracks and the Blue Island one. The branch lines will handle freight also.

At East Roosevelt road, the suburban tracks will occupy a tunnel below the facilities of the through passenger terminal. The plan provides for the segregation of suburban service tracks and placing them on the easterly side of the right of way most convenient to the patrons of this service.

The right of way on the main line south is nowhere less than 200 ft. wide. The plan for the final development of the right of way is as follows, the enumeration being from the west side: two industrial tracks, four suburban tracks; four through passenger tracks; and three freight tracks. The through passenger station building will be south of and adjoining East Roosevelt road—the principal east and west thoroughfare, 118 ft. wide, extending from Grant Park west to the city limits—and a half block east of Michigan avenue, the only existing through north and south boulevard. The station lands have a frontage of 693 ft. on East Roosevelt road, and an average width of 640 ft., comprising an area of 102 acres and a length of  $2\frac{7}{8}$  miles.

The station and office building will be opposite the

southerly end of Grant Park. The plans for the civic embellishment of this section of the lake shore development are nearing completion. The Field Museum of Natural History with which the station building will harmonize in texture, in general architectural treatment, and color stands east of the railroad. The stadium completed last year stands south of the museum and the John G. Shedd aquarium soon to be built will stand at the foot of East Roosevelt road and the lake. The station and office building furnish the remaining unit to the ornamental group long dreamed of by E. H. Bennett and Daniel H. Burnham.

#### Through Passenger Station in Completed Part of City

A through passenger station on the lake front is in a completed part of the city. Flanked on east and north sides by a park forever dedicated to the public, on the west by Michigan avenue, and to the south extends the railroad company's thoroughfare of main tracks.

The through passenger terminal is served not only by Michigan avenue and East Roosevelt road, but will also have the through north and south driveways in Grant Park east of the railroad. These park driveways will connect with the boulevard and street systems along the entire easterly front of the city. The vehicular accesses to the station, therefore, will be principally on boulevards reserved exclusively for swift moving vehicles and the traffic to and from the through passenger terminal need not interfere with the operation of slow moving freight trucks.

In point of time the station is nearer to the central business district than any of the other stations in the city. Travel to the far distant points of the city can be made on boulevards and thereby relieve the already congested heavy traffic streets.

The accesses to the baggage, mail, and express facilities will be by means of Indiana avenue, alongside the terminal on the west, widened to 100 ft., south to 16th street, and this street will be the route of heavy traffic to east and west, and north and south streets.

The through passenger terminal in this location will, therefore, have adequate accesses by cabs, will be close to existing surface and elevated lines, will have direct connection with the railroad company's suburban service, and will be adjacent to the municipal subways when built.

This location of the through passenger terminal secures it from any interruption occasioned by the operation of suburban, freight, and switching trains. Being separated from the suburban terminal, the growth of the suburban business will in no wise affect the operation of the through passenger terminal. With the construction of the 18th street railroad all railroads approaching the city of Chicago from the south and west will have convenient accesses to the lake front station either by means of the main line on the south or the 18th street railroad on the west.

The East Roosevelt road viaduct is the northerly limit as to viaduct construction, the 23rd street viaduct being the southerly limit, within the passenger terminal area. The elevation of subways and viaducts has been so fixed by the lake front ordinance that it is possible to develop a passenger terminal with a total capacity of 80 tracks, none of which will be less than 1,200 ft. in length. If the growth of the lake front passenger terminal should demand, a through track arrangement could be constructed on the lowest level with two stub-track levels super-imposed, and all three levels having permissible gradients on the main track approaches.

In addition to the space required for the terminal station building there is adequate room for baggage, mail, express, and mechanical facilities of sufficient capacity to

care for locomotives and through passenger equipment of all tenants using the terminal.

#### Many Major Changes Necessitated By Electrification

In preparation for the electrification of all services, it was necessary to carry out many changes in tracks, relocation of intermediate stations and of overhead structures, separation of grades of railroads and to secure a final location for the tracks before the bridge supports carrying the electrical conductors are erected. This involves the completion of track elevation projects within the electrified zone, such as the track elevation between 83rd and 115th streets, Kensington; the grade separations of the Chicago Junction Railway at 43rd street; that of the South Chicago branch from the main line at 67th street; the separation of grades of the Illinois Central and Rock Island and the Chicago & Western Indiana at Burnside; the separation of grades of the Illinois Central and the Chicago & Western Indiana at Kensington; the grade separation of the Illinois Central, the Baltimore & Ohio Chicago Terminal and the Pennsylvania at Riverdale; track elevation at Harvey, and separation of grades of the Illinois Central, Baltimore & Ohio Chicago Terminal and Grand Trunk, and also track elevation in Matteson and separation of grades with the Elgin, Joliet & Eastern and Michigan Central.

It was deemed uneconomical to attempt to continue the operation of Fordham and Wildwood yards for handling the general classification freight to and from Chicago. To take the place of these two yards within the limits of the city of Chicago one known as Markham yard is now under construction at a point 22 miles distant from the city.

The application of electric propulsion to steam railroad service, while used extensively in other sections of this country and abroad, is new to the City of Chicago. The Illinois Central problems are intimately associated with those of other lines in this city. To a certain degree, at least, the solving of its problems necessitated a measure of consideration to the interchange of other lines as well as to adequately care for this company's own operation. Since the smoke abatement commission's report was issued in 1915, there have been many advances in the art of electrification, and while this study had considerable value, it could not be adopted as a guide in determining the system of electrification for the electrification of the Illinois Central's Chicago terminal.

On account of the nature of the problem it was deemed wise to make the investigation for a decision in this case the most thorough of its kind. To secure this result a commission consisting of the ranking officer of the Illinois Central Chicago Terminal Improvement Organization as chairman, three electrical engineers experienced in the study and solution of electrification problems, and a staff of engineers, designers, and statisticians was created. The commission was assigned the problem of reporting upon the electrification of the Chicago terminal improvements of the Illinois Central in accordance with the provisions of the lake front ordinance of July 21, 1919.

#### Various Electrification Systems Were Considered

The commission considered the following systems:

1. Alternating current, 3-phase, with double catenary trolley.
2. Storage battery locomotive.
3. Diesel engine locomotive, or some other form of self-contained unit to meet the ordinance requirements as to emission of smoke, steam, cinders or noxious gases and noises more objectionable than those produced by steam operation.
4. 750-Volt, direct current, third-rail.
5. 1,500-Volt, direct current, overhead catenary trolley.
6. 3,000-Volt, direct current, overhead catenary trolley.
7. 11,000-Volt, alternating current, single phase, overhead catenary trolley.

A study of the installation and operation of these systems resulted in the elimination to all except the 1,500-volt, direct current, overhead catenary trolley and the



11,000-volt, alternating current, single phase, overhead catenary trolley.

A comparison of the initial cost, maintenance, and operating costs and other advantages and disadvantages included the study of:

1. Power supply: The direct current system was more favorable on account of the advantage of having three-phase power of either 25 or 60 cycles.

2. Power transmission: The three-phase, unity power factor system had an advantage over the single-phase, low power factor system and this was considered an important element in the problem under consideration.

3. Substations: The 1,500-volt system required the installation of rotative apparatus in addition to static transformers. The alternating current system requiring only static transformers had a decided advantage in this respect.

4. Distribution: With higher voltages the alternating current system had some advantage in first cost and in collection of current.

5. Train equipment: The direct current train equipments offered were materially lighter and cheaper than those for alternating current. In this respect the advantages were in favor of the direct current system.

6. Inductive interference: This factor was present in consideration of the 11,000-volt alternating current system. While it was thought such interference could be mitigated, it involved additional cost of installation and some complication to electric traction installations.

7. Electrolysis: Electrolytic corrosion can probably be mitigated or eliminated with less cost than to overcome inductive interference.

8. Safety and reliability: As regards the safety and reliability of the 1,500 and 11,000-volt systems it was believed there was not a material difference, as both systems were thought to be adequate.

The commission concluded from the result of the analysis and studies made that the 1,500-volt, direct current, overhead contact system was best adapted for the operation of the Illinois Central Chicago Terminal. This recommendation was adopted by the railroad company and this is the system now in process of installation.

#### Power Will Be Purchased

One of the major electrification problems settled was that of obtaining power. Consideration was given to the generation and distribution of current from generating and converting stations installed and operated by the railroad company, to the purchase of power from the Commonwealth Edison Company of Chicago. The traction supply will be direct current at 1,500 volts, and miscellaneous light and power will be three-phase, four-wire, alternating current at a nominal voltage of 4,000 volts between the phases and at a nominal voltage of 2,300 volts from each phase to terminal.

As to the purchase of power, consideration was given to obtaining suitable high voltage alternating current from the Commonwealth Edison Company to be delivered to substations owned and operated by the railroad company and also to the purchase of direct current for traction and alternating current at such voltage and frequency characteristics as were required on the railroad company's distribution lines at substations to be owned and operated by the Edison company. After considering the advantages and disadvantages of each scheme it was decided to purchase current from the Commonwealth Edison Company, the power company to own and operate the substations and deliver traction current at 1,500 volts and miscellaneous power at 4,000 and 2,300 volts.

The traction substations to be installed by the Edison Company will be at:

18th street.	Three.....	3,000 kw. units
69th street.	Three.....	3,000 kw. units
115th street.	Two.....	3,000 kw. units
Harvey.	Two.....	3,000 kw. units
Vollmer road.	Two.....	1,500 kw. units
Cheltenham.	Two.....	1,500 kw. units
Blue Island.	One.....	1,500 kw. units

Such additional substations will be installed by the Edison Company for the distribution of alternating current for miscellaneous light and power at such other locations as are required for the proper distribution of power in connection with the operation of the electrified zone.

It was estimated that the initial load for suburban operation will require an hourly maximum demand of 22,000 kw. at the substations and for this operation alone approximately 55 million kw.-hrs. per annum.

#### Some of the Construction and Equipment Details

The overhead system will consist of steel supports spaced on approximately 300-ft. centers for carrying the contact wires, signal and miscellaneous power circuits. The overhead contact wires will be supported by messengers of high conductivity, so that over each track there will be sufficient conductor capacity to supply the power required for that track, thus avoiding the necessity for independent parallel feeders. The contact wires, messengers, and their attachments will be made of materials highly resistive to corrosion. The normal height of the contact wire above top of rail will be 22 ft., and it will be suspended from the messenger so as to make its alignment conform to that of the track it serves. As the electrification will be carried out in progressive steps, the spans constructed initially for the suburban electrification will be ultimately extended to include the freight, through-passenger, and such subsidiary tracks as will be electrified. The track rails being well bonded will form a return circuit for the propulsion current and will be cross-bonded at alternate impedance bond locations. The signal system is to be changed from direct current to alternating current to avoid interference with the signals from the direct current traction current in the rails.

Where only a double track is electrified the supporting structure will consist of an intermediate column spaced midway between track centers. These columns will be provided with brackets supporting the trolley system over each of the intervening tracks. Where more than two tracks are to be electrified the support will be of portal type bridge construction, the cross spans being of such length as to result in economical construction.

Forty-five steel suburban passenger cars have been purchased for the electrified service, but are temporarily used in steam suburban service. The remaining cars, 215, are now on order, the delivery being specified for March, 1926, in time to have them thoroughly tested out and ready for operation about the middle of next year. A unit will consist of two cars semi-permanently connected, one being a motor car and one a trailer car. These units will have control apparatus in either end and will operate either as a two-unit train or multiples of two, probably not exceeding five two-car units. The cars will be equipped with diaphragms, enabling passengers to move between cars at will, and thus make the most advantageous use of all the seats on the train.

Partly due to the use of aluminum and aluminum alloys and partly to a redesign of the original steel service suburban car, the weight of the motor with equipment for electrical operation will be 125,000 lb. and the weight of the trailer 84,000 lb.

The braking equipment will be electro-pneumatic, the brake being designed for multiple unit service with the

1,500-volt motor-driven compressor. Power for the control and brake operation as well as for the car lights will be furnished by a motor generator set on the motor car, having a 1,500-volt direct current motor and a 32-volt direct current generator, with storage battery provided as a reserve. The two-car unit will have a pantograph collector on the motor car only. Several types of electric heaters are under consideration, but it is not yet decided whether use will be made of open coil or strip heaters.

#### General Dimensions of the Cars

The general dimension data applying to the steel cars purchased and now on order are as follows:

Length over buffers.....	72 ft. 7½ in.
Length inside body.....	59 ft. 8¾ in.
Length of vestibule.....	4 ft.
Truck centers.....	47 ft. 9 in.
Width over eaves.....	9 ft. 11½ in.
Width over platforms.....	10 ft. 6 in.
Width inside body.....	9 ft. 1 in.
Height, top of rail to top of car.....	13 ft. ½ in.
Height, to center line of coupler.....	2 ft. 10½ in.
Height, inside car to lower deck.....	7 ft. 1½ in.
Height, inside car to clerestory.....	8 ft. 4¾ in.
Weight of present cars, light.....	92,200 lb.
Seats, cross-seats.....	34, 68 passengers
Seats, longitudinal.....	4, 16 passengers

The service provides for a high rate of acceleration and deceleration with a normal balancing speed of 57 miles per hour on a tangent level track. The motor equipment on each motor car will consist of four 750-volt, 250-hp. motors connected in two groups of two motors in series per group with series parallel control.

A comparison of the present suburban steam schedules with proposed electric schedules in 1927 is illustrated:

Randolph street	Length of trip, Miles	Train No.	Steam operation		Electric operation		Per cent decrease in schedule time, electric vs. steam
			No. intermediate stops	Schedule time, Minutes	No. intermediate stops	Schedule time, Minutes	
67th street.....	8.00						
Local.....		384	14	30.0	14	24.5	18.3
Express.....		166	5	22.0	7	18.0	18.2
Matteson.....	27.93						
Local.....		1324	34	85.0	34	71.0	16.5
Express.....		326	25	80.0	27	64.0	20.0
Special.....		704	13	67.0	13	50.5	24.6
Golf.....		715	10	59.0	10	46.5	21.2
South Chicago.....	12.47						
Local.....		591	22	47.0	22	38.0	19.1
Express.....		132	13	38.0	15	31.5	17.1
Special.....		902	9	36.0	10	26.5	26.4

#### Suburban Operation By Middle of 1926

The work which has been accomplished to date is as follows:

The excavation under Grant Park south of Randolph street and retaining wall north of East Roosevelt Road on east side of right of way.

Randolph and Van Buren street subways.

Filling submerged lands, being three slips on the Chicago river and two on the lake at South water street, and also the submerged lands along the shore line between 16th and 33rd streets.

Construction of retaining wall on the west right of way line, 29th to 33rd streets.

Lowering the grade, rearranging tracks, and construction of additional tracks, 29th to 43rd streets.

Raising grade, rearranging tracks and constructing additional tracks, 43rd to 51st street.

Subsurface drainage between 29th and 39th streets where the established grade line is at elevation plus four, Chicago city datum.

Construction of sewers in Rhodes avenue between 33rd and 39th streets, to take the place of the sewers formerly existing on the railroad company's right of way between these limits.

Protecting sanitary district's 39th street 20 ft. western outfall sewer.

Passenger subway at 43rd street.

Extension of existing street subways between 70th and 115th streets.

Grade separation with the Pennsylvania and B. & O. C. T. at Riverdale. This was begun in 1924, and is now practically 50 per cent completed.

Grade separation with the B. & O. C. T. and the Grand Trunk, and track elevation at Harvey. This was begun in 1923 and will be completed in 1925.

Completion of the Markham yard in time for initial operation in October, 1925.

Construction of two additional tracks and extension of subways between Homewood and Matteson.

Track elevation at Matteson, including the separation of grades with the Michigan Central and E. J. & E.

Rearrangement of tracks and construction of platforms on the South Chicago Railroad, about 60 per cent completed, the remainder to be done in 1925.

Placing concrete foundations for overhead catenary supports, South Chicago

Railroad and southerly end of the main line south. This work will be completed in 1925.

Purchase of copper for the distribution system and steel for the overhead catenary support system.

It is planned to so correlate the work to be undertaken in 1925 and complete it in the first six months of 1926, so as to assure the initial electrical operation of suburban service by the middle of that year.

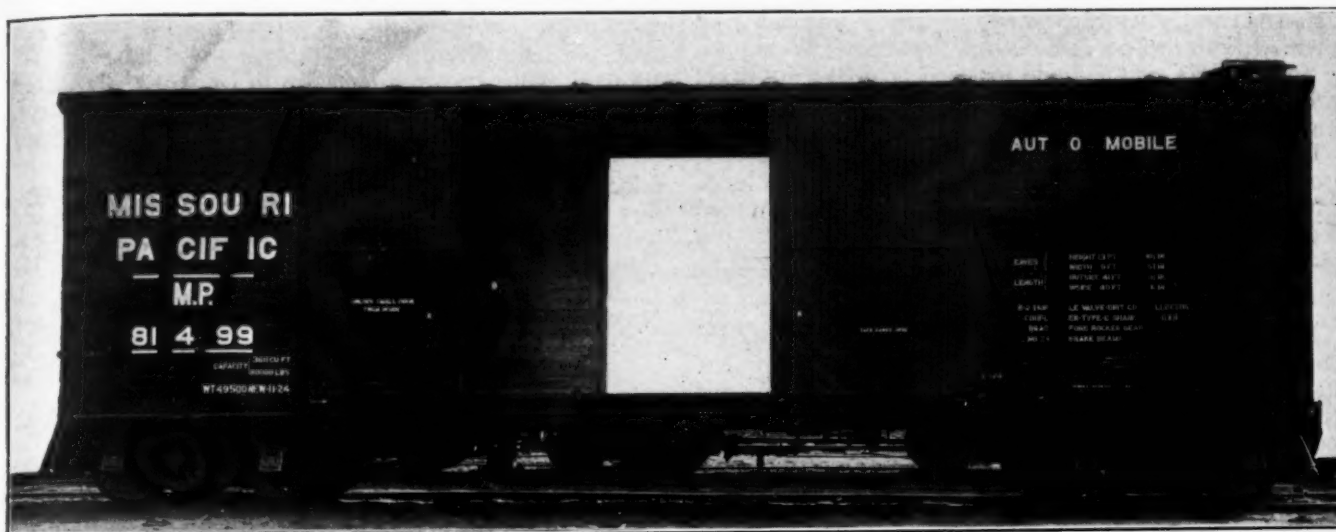
## Southern Employees Earn Bonus for 1925

**D**ISPATCHERS and engine and train service employees of the Southern Railway System have just been notified that they have earned a bonus of 1½ per cent of their compensation for the year 1925, payable in February, 1926. This is in accordance with a provision incorporated in the wage agreements reached about a year ago, as a result of the reduction in the ratio of certain selected operating expense accounts to total operating revenues for the year 1924 as compared with the ratio of the test year 1923.

The plan for co-operative effort in the relations between the company and its employees was introduced into the agreements which provided for an increase in wages of approximately 5 per cent in the base rates for three years and an opportunity to earn added compensation through increased efficiency by helping to reduce the class of expenditures which are most directly influenced by the efforts of the train service employees. The ratio of the total of 17 accounts to the total gross revenue was ascertained for the year 1923 to be 21.42 per cent, which is known as the test ratio. In February, 1925, the like ratio was ascertained for 1924 in the same manner to be 20.24 per cent. The agreement provided that if, notwithstanding increases in compensation of engine and train service employees, the ratio for 1924 was not in excess of the test ratio, then the management would, in the month of February, 1926, pay to each employee represented, as a bonus or added compensation, 1½ per cent of his total compensation for the year 1925; this to be the maximum of the bonus for 1925. In the event that the ratio for 1924 had exceeded the test ratio, such excess would have been deducted from the one and one-half per cent, but it was provided that in no case should the increase in ratio do more than wipe out the bonus payment. In 1926 the same method is to be followed, that is, the ratio for 1925, after charging into the expenses the bonus or added payment, is to be ascertained in the same manner and, if it has not increased above the test ratio, the bonus for the year 1926 will be 3 per cent, payable in February, 1927. If the ratio has increased the amount of the excess will be deducted from the maximum bonus rate of 3 per cent and the remainder will be the bonus rate to be applied to the 1926 compensation exclusive of bonus, for payment in February, 1927.

The ratio each month has been published in the Southern News Bulletin. For the month of December the ratio was 19.99 per cent. For the 12-month period the total operating revenues were \$189,447,571 and the total of expenses applicable was \$38,335,564, or 20.24 per cent. This was a reduction of 1.18 per cent as compared with the test ratio. Announcing the result Vice-President Miller said: "This result has been made possible by increased effort and efficiency and I congratulate each and all of you for your part in this achievement. Our faith in your ability to make good under the plan has been vindicated. I confidently expect you to keep up the good work and to do even better in 1925."





New Missouri Pacific Automobile Car

## Automobile Cars for Missouri Pacific

*Staggered doors are 10 ft. wide—Special side and center hoisting facilities are provided*

THE steadily increasing movement over the Missouri Pacific of automobiles from eastern and northern factories, and from branch factories and assembling plants at its principal traffic gateways, together with the railroad's policy of providing the most modern equip-

within the cars. This arrangement provides both side and center lifting facilities and was devised to meet the most exacting requirements encountered in the shipment of automobiles.

The cars are of the steel frame, single-sheathed type. They are provided with extra thick side sheathing for blocking purposes, staggered doors with ten-foot clear openings, specially designed Radial all-steel roofs, steel underframes, and Murphy corrugated three-piece steel ends. The cars are 40 ft. 6 in. long, 9 ft. wide and 10 ft. high, inside.

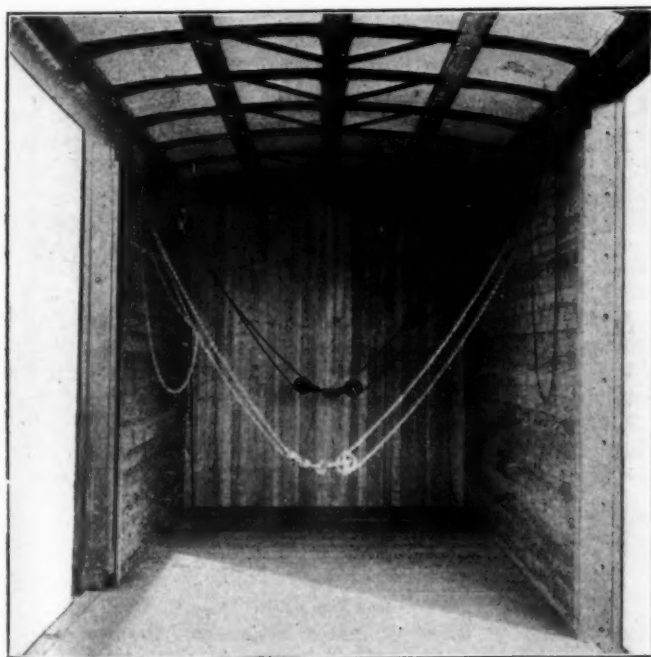
The center hoisting facilities consist of four steel T-beams, fastened to reinforced steel carlines of sufficient strength each to carry a load of 2,000 lb. in addition to the roof construction. There are five carlines which are not needed for lifting purposes.

There is one of the T-beam carline combinations on each side of the doorway, with the first of the series set back 3 ft. 1½ in. from the transverse center line of the car. The other two combinations are at each end of the car. To these steel T-beams the automobile manufacturer fastens tongs similar to ice tongs, to which are then attached block and tackle for raising the automobiles.

In addition there are 36 steel eyes set in the side plate of the car for side lifting. These are arranged in series, four between the first and second T-beam carline combinations nearest the doorway on each side, two between the second and third carlines of these forward sets, and three on each car side between the ends of the car and the innermost hoisting carline.

Such is the arrangement of the hooks and beams that lifting force can be applied with block and tackle from almost every angle or direction and at any place within the car. So far as is known this method has never been used before.

The extra thickness given to a portion of the side sheathing was devised to provide strong and convenient holding material to which may be nailed, or bolted, blocks



Tackle in Place for Side Lifting

ment for its shippers, resulted in the Missouri Pacific order for 1,000 new 40-ton automobile cars in the latter part of 1924. These cars are now being placed in service. Perhaps their most noteworthy feature is a specially designed hoisting arrangement for loading automobiles

for supporting platforms between automobiles loaded on others beneath them. This desired thickness was obtained by applying six tongued and grooved boards, 2 in. thick, with a  $5\frac{1}{4}$  in. face, one above the other, beginning at a height of 3 ft.  $3\frac{3}{4}$  in. from the floor.

The 10-ft. clear door opening, with the stagger feature, is obtained by making the larger side door 6 ft. wide, or 3 ft. on each side from the center line of the car, and locating the smaller door, 4 ft.  $1\frac{3}{8}$  in. wide, on the left side when facing the door from the outside.

#### Important Construction Details

The center sills for these cars consist of two 12-in., 35-lb. channels, spaced  $12\frac{3}{8}$  in. apart, extending from end sill to end sill with a 20-in. by  $\frac{3}{8}$ -in. top cover plate and a  $3\frac{1}{2}$ -in. by  $3\frac{1}{2}$ -in. by  $\frac{1}{2}$ -in. lower chord angle extending between the bolster filler castings. The specifications call for a cross sectional area of the center sills of not less than 28 sq. in. The side sills are of Z-bar construction reinforced at the side doors with a 4-in. by 8.2-lb. Z-bar



Reinforced T-Beam Carline Sets with Hoisting Tackle in Place at the Side and Center

riveted to the bottom flange and extending 12 in. past the door opening. The body bolster is of box section having  $\frac{3}{8}$ -in. pressed steel diaphragms flanged  $3\frac{1}{2}$  in. all around and placed 11 in. back to back. Top and bottom cover plates extend from side sill to side sill. A diaphragm stiffener of  $7/16$  in. steel plate is applied at the side bearing.

There are two cross bearers of  $5/16$ -in. plate flanged  $3\frac{1}{2}$  in. all around and reinforced at the top and bottom by 3-in. by  $2\frac{1}{2}$ -in. by  $5/16$ -in. angles. The cross bearer center sill fillers are made of  $\frac{3}{8}$ -in. pressed steel flanged  $3\frac{1}{2}$  in. all around and extend the full depth of the center sills. The top cover plate, 12 in. by  $\frac{1}{2}$  in., extends from side sill to side sill and the bottom cover plate of the same section extends from side to side of the car and is riveted to the side Z-bars.

A. R. A., type D, cast steel couplers with 6-in. by 8-in.

shanks are used, operation being from the top. The draft gear is of the Bradford rocker type provided with "G" springs. The cars are equipped with DeRemer-Blatchford side and end ladders and Viloco pressed steel brake steps. The brake equipment consists of Westinghouse Schedule KC-1012 air brakes with double pressure spring type retainers and branch pipe tee bottom outlets. Other specialties include Bettendorf truck side frames with integral boxes and Asco pressed steel lids, Miner rolling rocker side bearings, Chaton fibre dust guards, and Schaefer forged three-hole bottom connections and self-locking brake hangers.

## Freight Car Loading

WASHINGTON, D. C.

REVENUE freight car loading in the week ended February 28, which included the Washington's Birthday holiday, amounted to 862,910 cars, a decrease of 81,604 cars as compared with the corresponding week of last year and of 55,714 cars as compared with the corresponding week of 1923, both of which weeks did not include the holiday. Loading for the first nine weeks of this year, however, is still ahead of that for the corresponding period of last year. The Southern and Southwestern districts showed increases as compared with last year as did the loading of ore, but all other districts and classes of commodities showed reductions. The summary, as compiled by the Car Service Division of the American Railway Association, follows:

#### REVENUE FREIGHT CAR LOADING—WEEK ENDED FEBRUARY 28, 1925

Districts	1925	1924	1923
Eastern	200,966	234,364	220,924
Allegheny	178,489	195,928	194,635
Pocahontas	40,277	45,950	194,635
Southern	145,605	142,852	147,884
Northwestern	110,271	126,298	124,634
Central Western	124,053	138,168	138,849
Southwestern	63,249	60,954	55,316
Total Western districts	297,573	325,420	318,799
Commodities			
Grain and grain products	38,165	51,166	44,969
Livestock	28,873	32,198	32,094
Coal	150,629	186,453	193,548
Coke	12,834	13,604	16,137
Forest products	79,428	81,513	75,962
Ore	11,485	9,853	10,520
Merchandise, L.C.I.	230,105	245,690	228,457
Miscellaneous	311,391	324,037	316,937
Total	862,910	944,514	918,624
February 21	925,295	845,699	830,187
February 14	902,877	935,589	816,646
February 7	928,244	906,017	849,352
January 31	896,055	929,623	865,414
Cumulative total, nine weeks	8,070,319	7,926,089	7,654,188

#### Car Loading in Canada

Owing to the prevalence of cold weather and snow storms revenue car loadings at stations in Canada suffered a heavy decline during the week ended February 28, the total for that period being 52,417 cars, or a decrease of 3,745 cars from the previous week. Lighter grain loading was the principal factor in the decrease from the same week last year of 4,499 cars. Pulpwood also showed a decrease of 623 cars while coal loading was heavier by 634 cars and merchandise by 738 cars.

Commodities	Total for Canada			Cumulative totals to date	
	Feb. 28, 1925	Feb. 21, 1925	Mar. 1, 1924	1925	1924
Grain and grain products	6,704	7,238	8,653	57,823	74,755
Livestock	1,815	2,069	2,572	20,222	18,390
Coal	6,074	6,027	5,440	55,080	40,603
Coke	321	288	272	2,778	2,453
Lumber	2,798	3,296	3,603	24,767	25,676
Pulpwood	4,041	4,959	4,664	36,560	32,165
Pulp and paper	2,416	2,207	2,202	18,807	19,297
Other forest products	3,646	4,067	3,919	28,979	26,622
Ore	1,079	1,140	923	10,094	7,875
Merchandise	14,115	14,246	13,377	120,460	107,713
Miscellaneous	9,468	10,625	11,291	85,061	88,335
Total cars loaded	52,417	56,162	56,916	460,631	443,884
Total cars received from connections	32,540	35,727	38,750	295,806	297,394



# How to Attack the Labor Problem\*

*Timid, hit-or-miss methods unsuccessful—Expert counsel required—Experimentation needed*

By Dr. Henry C. Metcalf  
Director, Bureau of Personnel Research

[Dr. Metcalf opened his address by telling of some of the various movements and societies which have been interested in personnel and management problems. In this connection he mentioned specifically the vocational guidance movement, the efficiency movement, the National Association of Corporation Schools, the Taylor Society, the Industrial Relations Association and the American Management Association. These, he said, had paved the way for the study of personnel administration—which has now become a definite science and is so recognized by the universities which are giving instruction in it. The colleges, he said, are preparing men for this work just as they are preparing men skilled in the other professions—law, medicine, engineering. And industry is beginning to avail itself of trained experts in this line the same as it employs trained engineers.—EDITOR.]

ONE of the most significant factors in the movement toward an understanding of personnel problems is the increasing influence of the teachings of science, particularly psychology, biology, a more human interpretation of economics and pedagogy. I do not mean to overstress what psychology has done, but it is doing a great deal without any doubt to concentrate attention upon the understanding of human behavior—particularly that of adults in industry. To study human behavior in adults in industry is quite different from studying juvenile behavior in the schools and monkeys in the laboratory. Too much of the attention of psychology in the past was devoted to these other situations and conditions. But now we are finding that industrial leaders and psychologists are getting together in order to study human behavior in industry. Dr. Dewey's book, "Human Nature and Conduct," is a striking contribution in this direction.

As I look at all these different movements for the solution of human relations problems I think of them as concentrated in the term "personnel administration"—by which I mean the science and art of the human relations in industry, in government, in commerce, in education—wherever people are at work—with a view to increasing efficiency therein with a minimum of effort, sacrifice and friction.

## Be Studious and Open-Minded

I am going to enumerate briefly what seem to me some very essential things to be borne in mind in connection with personnel administration. First, I should say that everyone who is responsible for the direction of the work of others should decide to be a Columbus to his own soul. In other words, it is time to find out what we think about our thinking on this employer-employee relationship. It is time for us to think as to what we mean by normal, fundamental human nature. That means independent thinking. That means reflection. That means research. That means establishing the scientific attitude of mind.

That means an open mind. That means to become insofar as possible objective and impersonal. It means to do the best we can in such independent research and reflection; it means to get the best we can from the ablest minds of the past and of the present. I am a great believer in what Mazzini says: "I would mingle with men in order to gain strength from them." By that I mean mingling with the minds of those who have thought and lived and been leaders in these important matters in the past.

I have recently had the task, with some others, of compiling a bibliography on personnel administration. It goes back just a few years—not before 1918—but it contains over three thousand references. The great body of the literature on the subject is very ephemeral, however; it is in no sense fundamental.

I could name several men in this country who have been friends of mine for 15 or 20 or 25 years, who are leaders today in this country in the matter of establishing sound human relationships because they have been consistent, persistent, careful students of these problems. One of them years ago said to me, "I don't care if that factory out there passes out of sight. From this time forth I am going to become a student of these problems." And he has. There are not enough people who are reflecting, who are taking time, who are literally trying to discover their own souls.

## Encourage Desire to Do Good Work

That leads me to my second point which I will state as follows: The best asset that any business can have is the whole-souled, enthusiastic interest of every one of its employees in the problem of improving the quality of his own labor. It is quality that counts. We are through with that pioneering, frontier, superficial, extensive economics—the quantitative—and we are passing over into the qualitative era, and rapidly. In other words, we are right against the great problem of the conservation of human energy. That is our great problem and I believe that in the next generation or two the reservoir of quality will yield great wealth. The final source of all true value resides in the physical, intellectual and spiritual powers of every human unit. You must understand human instincts; you must realize what intelligence means; you must recognize that habits are vital; you must recognize the relation between my physical, intellectual and spiritual unity. You must realize that I am free up to a certain point to express myself in many relationships—to choose my wife, to choose my church, to choose my associations. Positive law comes into control and positive law will be held in check just about in proportion to the degree that you and I learn to realize our individual freedoms in the right way. In other words, between positive law and individual freedom and between individualism and associationalism there is a sphere of obedience to what some one has called the unenforceable—that which is right, that which is just, that which is fair, that which is equitable. One of the crying needs of the world today is a keener sensitiveness

\*Abstract of an address delivered before the New York Railroad Club on February 20.

with reference to the sense of justice, which is the very essence of democracy. What I am talking about is the quality fact in life's relationships, and in no place is it more important than in industrial relations, because our age is such an economic age. Now that means growth, doesn't it?

[Dr. Metcalf here read, to illustrate this growth, a paragraph on Lincoln from the New Republic, a part of which follows: "Most men never truly feel the weight of life, or else flatten under the load. Some achieve the useful hardness of coal, while a few, a very few, under terrible pressure bring forth the brilliant and immortal diamonds of the soul."]

In the remarkable chapter at the close of his volume, "The Industrial System," John A. Hobson, one of England's greatest economists, says that the forced consent of the vast majority of the people of the world to do their work against their will is the heaviest drag upon the car of human progress. Turn that right around, and what is exactly the opposite? What we are struggling for today—blindly, gropingly, but fundamentally—is a greater opportunity for growth, and that means freedom in expression.

Another economist, Professor Taussig of Harvard University, says that freedom in occupational choice is the greatest goal of society. Nothing influences us so much in this world as work relationships. There is far more opportunity for growth, for expression in the work relations than we have yet realized, and my guess is that the world today, as never before, is finding the common man struggling to express himself. So I would say that the best asset, the quality fact, is an effort on the part of a vast majority of the people of the world to express their personalities in a way they have not been able to do in the past.

#### Consider All the Interests of Employees—

##### Home, Politics, Religion, Recreation

Now third—a term which I take from some of the psychologists—the "total situation." I read here a brief statement from that helpful volume, "The Philosophy of Management," by Oliver Sheldon, business manager of the great Rowntree Cocoa Works in York, England. Mr. Rowntree, having recognized Sheldon's great abilities and clear thinking in this problem of business administration, put him into that practical post. Mr. Sheldon says:

"The most natural bond between individuals is that of co-operation in a common enterprise. Association, to be vigorous and effective, must faithfully reflect the will of its adherents and form an intimate part of each adherent's interests. Mankind, as a whole, is instinctively communally-minded. Industrial management is thereby presented with the opportunity of making the factory rather than the class the basis of association."

Now making the factory the basis for association means that the factory must take into consideration all of man's vital interests—his home life, his political life, his religious life, his recreational life, and all that makes life a totality.

##### Initiative Must Come from Management

Now next, the fourth point, I want to stress the fact that I believe the executives must supply the initiative and be the leaders in a movement of this character. They are fundamentally the directors, the controllers of economic power in a way that the masses cannot be. They can command and do command the co-operation and the assistance of many kinds of scientists and many types of experts. They are equipped to lead and they should lead. I don't know when I have been more delighted than

I was in a piece of analytical work, when the president of the plant said: "I don't want you to make any contacts with the rank and file until you have first informed the executives as to what is to be done." The executives were brought to understand what was to be done before anything was presented at all to the rank and file.

I know a great many places where things started off nicely, but were not kept up. I spent five hours with a group of employee representatives of Chicago plants a year or so ago, and I was told at the end of that long conference that they would vote that employee representation plan off of the map if the higher executives did not take more interest. There was not leadership there of the right kind at all.

#### Experimentation Needed

Now number five: Don't be afraid to experiment; if there is anything in the world that is needed today it is experimentation in these human relations. A writer of one of the *Railway Age's* prize essays on co-operation said: "The railroads have opportunity for mechanical improvement, but there is no use of further mechanical equipment until we understand and develop more fully sound human relations." Business success rests upon good judgment and definitely upon the power to initiate—upon the ability, if you please, to learn from mistakes. President Hopkins said in addressing the students of Dartmouth last year:

"Somehow, if progress is to be made, new codes of action must be drawn, under which the difficult adjustment of individualism to group responsibility shall be shown to be practicable and in which the two motives shall be blended. No greater challenge can be issued to the college in its capacity as representing the world of education." And I want to insert no greater challenge can be represented to the business world in my judgment than honest, careful experimentation. Now you must think historically, you must think scientifically, you must think and act socially in that experimentation. But I do not believe that there is any right in this world more definite than the right to initiate.

#### Duties and Responsibilities of Personnel

##### Director Must Be Clearly Defined

Number six: There is a definite importance attached to a clear understanding of the position and function of the man who is called the personnel director. I suppose you realize that there is a good deal of contention as to whether or not he should report to the president, whether he should report to the production manager, or whether he should be on a par as vice-president with the other chiefs. I am not saying anything about that, except that his position as fact-finder, as adviser, as counsellor, as educator, as trying to lead the supervisory forces to appreciate the fact that it is their problem to get personnel relations in a sound way is one of the greatest challenges that any man can face today in industry.

#### Ideas Must Move Easily from

##### Management Down to Employees and Vice Versa

Number seven: More and more, if we are going to have sound human relationships in industry, we have got to have what I call double-track channels open in industry in each establishment and each company. And by double-track channels I mean that the policy, the ideals, the hopes and aspirations of those at the top must find their way down to the rank and file; and there must be open channels, so that what is on the mind of the rank and file will find its way up through to the president. If you will just think of the owners, the supervisors and the rank and file as three groups to bear in mind, it will perhaps help.



And with the intermediate group there is much that is now receiving a great deal of attention, and there seems to be a great deal of difficulty. If I were selecting and trying to train and help at that point, I would want a supervisor who had real intellectual curiosity. I would want him to have the habits of studying, and I would do all I could to encourage them even to the extent of seeing that he had time to do it.

#### Discussion on Any Subject Valuable

##### as Stimulus to Thought

I was delighted the other day to learn that after four years' experimentation in training foremen in one of the Standard Oil companies, they now have set the thing up as a permanent procedure on company time, because it has proved such a valuable asset. It doesn't make any difference what they are doing by way of education. If you can get up a real, live, mental activity on any topic, it is worth while. I don't care if it is a discussion of women's rights, or what it is. In other words, mental activity just for mental activity's sake is a normal characteristic of the human mind, and if you can get the mind alive it is sure to produce by-products worth while. I would want the foreman in training to have the ability to learn from others, and to crave the opportunity for it. And, above all, I would want him to have the ability to co-operate with men.

John Stuart Mill in his essay on "Civilization" says that both the capacity for and practice of the habit of co-operation is the surest test of an advancing civilization, and it is true.

#### Greater Democracy in Industry Inevitable

Now I come to what I believe to be the most important and the most difficult and the most promising of all these ideas—the eighth: the inevitability of democracy in industry. I use the word "inevitable" deliberately. It means that one has to have faith of a very fundamental kind in human nature and he has got to have faith in a religious principle. "Science and Religion," says Dr. Patten, the great biologist of Dartmouth College, "the elder brothers of social life, must draw closer together in co-operative social action—science absorbing the more hopeful and spiritual qualities of religion, and religion the more progressive and frankly intellectual qualities of science. Every phase of man's education must emphasize the creative law of co-operative egoism and altruism"—his give or his take—"or the universal obligation to self-aggrandizement for the purpose of self-giving. This elemental creative law is the fundamental lesson of social life. Unless it is well learned, forming a basic part of man's personal character and of his social institutions, his intelligence will be devoid of the most essential human quality, his learning vain, and his social life a failure."

To quote from that master mind of democracy DeTocqueville who wrote in 1837:

"The first duty which is at this time imposed upon those who direct our affairs is to educate the democracy; to warm its faith, if that be possible; to purify its morals; to direct its energies; to substitute a knowledge of business for its inexperience; and an acquaintance with its true interests for its blind propensities; to adapt its government to time and place; and to modify it in compliance with the occurrences and the colors of the age. Wherever exertions may be made, no true power can be founded among men that does not depend upon the free union of their inclinations."

If we are going to have permanent power, it must depend upon the free union of those who are at the point where the work is being done. Now what does that mean? It means not superior force, but a right. In other words,

we must become scientific; we must spiritualize industry. We have to have a science and an art, and the art takes us over into the human relations side. Now there again bear in mind what I said from Hobson: It is the forced consent of the vast majority of the people of the world to do their work against their will which has caused so much difficulty.

#### Democracy Does Not Mean End of Leadership

I believe that power with increasing momentum is passing from the few to the many. I don't mean by that that we are going to free ourselves from leadership. There isn't any kind of government in the world which calls for such a high type of leadership as democracy. With the passage of power from the few to the many must go a spread of intelligence, and that is the great need of the world today—and particularly intelligence regarding sound economic relations. There is hardly a business executive that I come in contact with but says, "Can't you tell us how to get over some elements of economics here? We need it very much." It was rather significant that in a large number of essays in the *Railway Age's* contest, the writers said, "Give us an opportunity for ownership." And you know that the American Telephone and Telegraph Company, the Pennsylvania Railroad System, the Standard Oil Company, and many others, are developing opportunities for their employees to acquire ownership in their properties. This is bringing what Professor Carver has called the evolution of the "labor-capitalist" class. He says that the evolution of this class is the most significant revolution of an evolutionary type that is going on in the country. This is in harmony with what I believe to be fundamental law—that power is passing from the few to the many.

Then we must develop fundamental principles and tested technique with reference to practical co-operation between employers and employees.

Edward A. Filene of Boston, in his book, "The Way Out," says that one of the fundamental laws of democracy is that the leaders cannot go faster than the masses can follow, and follow safely.

#### Conflict Should Be Welcomed for

##### What It Can Teach Us

Business is an integrating unit. It is an organic unit. Business is an organism—by which I mean that it has the power to analyze itself, to understand itself, to direct itself, to reveal itself. There is a good deal of conflict going on. Now there are three ways in which conflict may be treated: It may be treated by domination; it may be treated by compromise (and it has been treated that way in the past); it may be treated as a process of integration—which means that we should look upon conflict as a challenge. We should look upon it as an opportunity out of which we are going to find something that is constructive, in which all concerned, if they will regard it simply as an opportunity for growth, will be victorious. There won't be any power *over*, but there will be power for everybody *with*—and that is what I mean by integration.

#### Personnel Administration a Science

##### and Administrators Professional Men

Finally I would say that the time has come for us to recognize the whole management movement in the light of a profession. By this I mean that we must recognize the difference between expert knowledge of an intelligent character as contrasted with mere mechanical skill; that we must train men to think more scientifically and objectively; that the application of science (which is really professional knowledge) to practical affairs must come

into harmony with sound ethical codes. One of the most interesting movements that is passing over the country is the present wide attention to questions of ethics. Much of it may be superficial, but it certainly reflects a very fundamental aspect of human nature.

In a profession financial return is not the sole criterion of success. There must be the fundamental concept of service to others. Again, professions are open, they are public, and they are very often given legal recognition.

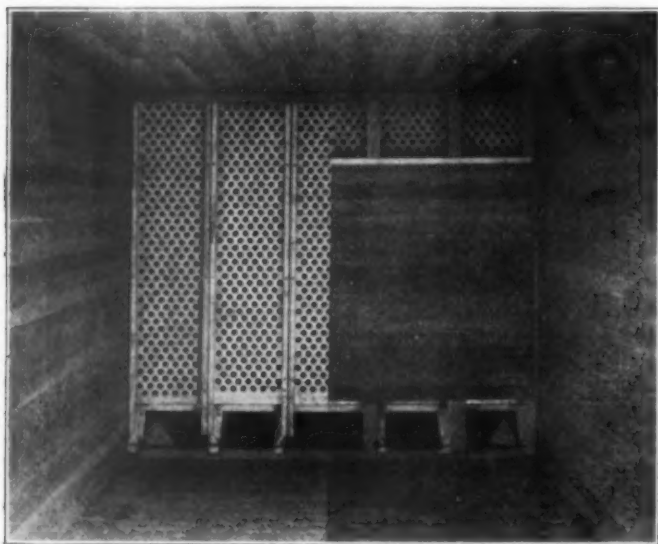
#### Summary

Now I am going to summarize in this way:

1. Be a Columbus. Believe in stretching your mind. Be independent in your thinking.
2. Believe in the principle of growth. The great philosopher, Dr. Dewey, says that growth itself is the only truly moral end.
3. Grip the quality fact as the best business asset.
4. Sense the total situation—work, play, love, religion, home, association.
5. Don't be afraid to experiment, but know what you are doing.
6. Be sure the personnel man knows his job and is on the job. Be on *tap*, and not on *top*.
7. Have an abiding faith in the principle of democracy. Believe in people.
8. Look upon conflict as a constructive opportunity.
9. Regard management as a growing, evolving profession.
10. Believe that to establish, maintain, advance and defend physical, intellectual and spiritual freedom in the work relations is the noblest work of man.

## Bulkhead and Ice Grate of All-Metal Construction

**T**HE Equipco all metal bulkhead and ice grate illustrated has been designed and constructed by the Equipment Specialties Company, Chicago, to give a strong, pilfer-proof ice compartment for refrigerator cars.



Equipco All-Metal Bulkhead in Refrigerator Car—The Left Half of the Wooden Face of the Bulkhead is Cut Away to Show the Perforated Metal Sections

tor cars. The usual wooden ice grates are easily cut through with a saw or axe, or the bulkhead netting with clippers. Tools for this purpose are readily con-

cealed about the person, and the thief merely drops down into the ice compartment and cuts through to the merchandise; no seals need be disturbed and he works where he cannot be seen. Besides preventing pilferage, the all metal bulkhead and ice grate is designed to provide a strong construction which will eliminate the breakage of bulkhead posts, due to shifting loads in the car body or wedging ice in the ice compartment. Both of these conditions are responsible for considerable damage and consequent expense in repairs.

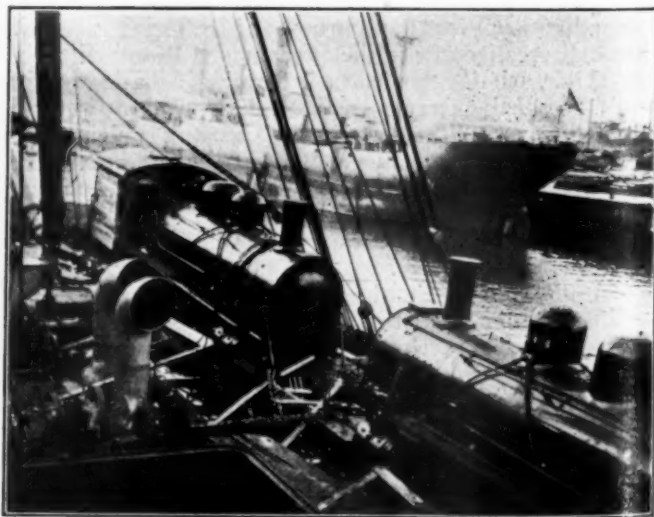
The Equipco design consists of perforated metal sections which, when in place form a strong partition across the car. The posts are formed as integral parts of these sections. The tops of the sections are bolted directly to the ceiling and header, while the fastening at the floor is by means of post shoe castings secured to the floor rail. This gives the equivalent of an all steel end for refrigerator cars, located where it will afford the maximum protection, namely at the bulkhead and not at the car end as in the case of box cars. The actual trouble from shifting loads in refrigerator cars comes at the bulkheads and not at the end walls.

The so-called basket bunker generally used is maintained, but the piece of netting at the bulkhead is unnecessary as the perforated sections answer the same purpose.

The sections are bolted to each other, and securely fastened to the side walls of the car.

The substantial pressed steel grates are individual bars, not made in sections as is the case with wooden grates. The grate bars are carried between the flanges of channel-shaped carriers, and they are locked in place by a key grate bar at the center. The fastening or lock for the key grate is accessible only from the inside of the car proper, and not from the ice compartment. Thus, unless this key grate is removed, none of the other bars can be disturbed.

Further advantages claimed for the Equipco metal bulkhead and ice grate are minimum maintenance expense, easy application, and conformance to existing standards of ice capacity and distance between bulkhead faces. This equipment is in service on three refrigerator lines.



P. & A.

Shipping Locomotives Complete to Argentina from Baldwin Locomotive Works



# Operation of Railroads in War\*

*Plans for army operation in close co-operation with existing organizations*

By Brig. Gen. Edgar Jadwin  
Corps of Engineers

THE subject assigned to me for discussion in this important conference is "The Operation of Railroads in the Theater of Operations." I understand informally that it is expected to be discussed with especial reference to the points of contact between railroad operations in the zone of the interior by civilian personnel and railroad operations in the theater of operations by army engineer units. This subject is approached with hesitation before an audience containing so many practical railroad men.

The railroad operation in the theater of war in the case of a stabilized front like that in the World War, consists essentially of the operation of daily trains from the regulating stations to the standard gage railheads. These are in some instances also division railheads. In France the front was stabilized so long that the other division and subordinate railheads and dumps were supplied by light railways operating forward from the standard gage railheads. This was a special situation which would not obtain in a war of movement. The standard gage trains from the regulating stations forward in France were operated under the direction of a senior officer of the Transportation Service, who was kept in equipment, crews and supplies by General Atterbury and who dispatched these trains to meet the requirements of the regulating officers and of G-4 at General Headquarters. The light railways which distributed the supplies to division railheads, rock trains, engineer dumps and battery stations were operated by railway engineer troops under orders of the field army in which they were located.

In the case of war carried to our own country by foreign troops, the front is less apt to be so stable, and the problem more general and less specialized. Careful attention and a correct understanding of principles is essential to prompt and successful operation.

One of the first general principles to be borne in mind is the proper division of responsibility between the operation by the railroads themselves in the zone of the interior and that by the army engineers in the theater of operations. You have already heard from Secretary Weeks, Colonel Davis, General Hart, Mr. Felton, Mr. Aishton, and Mr. Gormley how it is contemplated to use the railroads in the zone of the interior. The outstanding point is that under the law they shall function satisfactorily to the Secretary of War. Assume this contact to be exercised through the Assistant Secretary of War, assisted by such staff as he may find necessary. The physical operation will usually be in the hands of the permanent officials and personnel, so that the existing force will shift into war time conditions with a minimum of disturbance of the magnificent equilibrium now maintained by the companies.

In the theater of operations the objectives, the operations, and the orders for carrying them out, must be determined by the general in command. Civilians can not normally be expected to operate under fire or under the immediate threat thereof. On the other hand, the army

operators should have as shallow a front as practicable over which to operate, ordinarily not more than a depth equal to the length of a railroad division. As the combat troops advance, the army operators keep pace with them. The number of railway troops should change as little as possible after being once established and their places as they advance should be taken by the civilian railroad personnel operating under their own officials. As the troops attain and have properly protected the end of a railroad division and start forward along the next division, the railroad division passed should be turned over to the parent railroad for civilian operation. If attempt be made to have the army operate too long and to maintain a continually increasing length of road its efficiency near the front will be decreased.

To illustrate somewhat more in detail these relations, let us assume a situation in a part of the country where war is not now very apt to happen. The general principles will be the same if it becomes necessary to defend any section of our country. Assume that at the time of the Spanish War, Cuba had been occupied by a power larger and stronger than ourselves, but so far distant that the balance of military power had been preserved. Further, assume that the enemy had thrown a large body of troops from Cuba into Florida and had taken all of Florida up to within striking distance of the Jacksonville-Tallahassee Line. The enemy receives its supplies through the ports of Tampa and Key West. Normally, any operations around Florida would be largely influenced by the relative situation of the two navies. In order to eliminate that from the present consideration, let it be assumed that the navies had in previous engagements so crippled each other that they can be left out of consideration during the period covered by these land operations.

The territory of the Seaboard Air Line from Tallahassee to Jacksonville and southward will therefore form the theater of operations. Assume further that the physical condition of the railroads of the United States, other than Florida, is excellent and that their personnel is in a high state of efficiency. On the other hand, that the lines and their equipment in Florida now occupied by the enemy will be rendered inoperative by him as far as practicable in his retreat as he is pushed southward by our troops advancing from the north. These lines will therefore have to be rehabilitated as we advance. Two hundred and fifty thousand troops are assumed as available in the early stages for the American army operating on the Florida front.

Railway operations during the first phase will comprise two classes of activities, namely:

1. The timely inauguration of plans and placing of orders for obtaining such force, supplies and equipment as are needed in the movement.
2. The operation and maintenance of railways to move troops, animals, and supplies from their stations to points near their destinations, and to provide necessities for the civilian population as the enemy is forced back. This will

\*Address delivered at meeting held in Washington, D. C., on March 2 under auspices of War Department.

include such increase in the capacity of facilities as is necessary for the objects to be attained.

It is proposed to establish a large base on the Seaboard Air Line between Jacksonville and Baldwin. Assume this base to contain 650,000 square feet closed and shed storage equivalent to 40 storehouses 300 ft. long and 50 ft. wide; also 2,000,000 square feet of open storage space, all served by trackage. It will be noted that this base is well adapted to receive its supplies coming from the eastern, central, and western portions of the United States by three strong railroad systems, the Southern, Seaboard Air Line, and the Atlantic Coast Line, with which connection can be made from all points of the country. Such supplies as can be brought in by water to Jacksonville can be placed in storage by shuttle trains operated between Jacksonville and the base. There are three main lines of railroad running south from the base towards the enemy, the Florida East Coast Line in the east, the Atlantic Coast Line in the center, and the Seaboard Air Line to the westward. The divisions of these lines which will start from the Baldwin-Jacksonville base, will extend approximately to Daytona on the Florida East Coast, to Sanford and Dunellen on the Atlantic Coast Line, and to Ocala, on the Seaboard Air Line. The major items of railroad construction contemplated in the initial phase, will be receiving, classification, storage and departure yards at Baldwin with tracks for detaining troops and storage, engine terminal, and a shop. There will also be required large amounts of rail and timber for restoring track as the troops advance. Assume on each system about 8 trains daily southbound, 16 in both directions. As the track is a single track additional passing tracks will have to be provided in order that these trains may be kept moving without delay. Additional water tanks will have to be provided.

Assume the following equipment as required to be furnished to the army by the parent lines in the zone of the interior: 33 freight locomotives, 12 yard locomotives, 8 passenger locomotives, 27 cabooses, 567 box cars, 140 freight cars, 60 water tank freight cars, 150 stock cars, 5 pile drivers, 3 wrecking cranes, 5 locomotive cranes, 8 work cars, 8 kitchen cars, 8 bunk cars, 10 passenger B. M. cars, 24 coaches, 3 standard sleepers, 8 business cars, 3 tourist sleeper cars, 3 dining cars, 3 baggage cars, 3 freight automobile cars, 6 inspector motor cars.

Assume the following field operation organization as needed: 37 train and engine crews, 5 men each, 22 yard and engine crews, 5 men each, 76 telegraphers, with the necessary baggage and express messengers, yard-station clerks, section foremen and labor, bridge carpenters, pumpers, machinists, boiler makers, blacksmiths and helpers, car inspectors, car repair men, hostlers, pile driver and wreck derrick engineers, aggregating about 1,600 men.

Assume that each of the three railroad systems running south will require a general superintendent, executive officer, office manager, assistant auditor, freight rate expert, passenger rate expert, chief of tariff bureau, auditor of freight and passenger accounts, auditor of maintenance of equipment, auditor maintenance of way accounts, auditor car and equipment accounts, chief freight clerk, chief passenger clerk, and the necessary clerks, bookkeepers, accountants and railway transport officers, aggregating in all about 100. Also a superintendent of motor power, assistant engineer, assistant storekeeper, assistant bridge engineer, supply officer, assistant structural steel inspector, troop movement officer, fuel agent, and the necessary assistants to these officers, aggregating in all about 50 officers and 85 civilians.

The reconstruction of existing telegraph lines, including railway lines, will be done by Signal Corps troops. The telegraph material will be furnished by the Signal Corps, and the railway circuit lines used exclusively for

railroad operation will be operated by the railway battalions.

As previously stated the railroads in the United States will deliver their trains with troops and supplies to the base line of the Seaboard Air Line running west from Jacksonville through Baldwin. Engineer combat regiments within the theater of operations will be largely occupied with bridge, road, and general construction at first. There may not be enough equipment and railway engineer troops available for starting the quick operations desired in the first phase. The parent lines in the zone of the interior will therefore at first, as far as practicable, operate and if practicable aid in the reconstruction and initial operation and repair of the lines in the theater of operations.

Some of the preliminary construction just to enable trains to get through, if it is more urgent than road work, may have to be handled by the combat troops. A case when this was done to advantage in France was cited to you this morning by General Hines. Such work will, however, be regularly performed by construction troops. For an operation of this character assume that about four engineer railway and labor battalions per system will be required, or twelve in all. These should be formed partly with men of railway experience in railway operation and equipment and partly of men of railway construction and maintenance of way experience. We are now planning railway battalions which are operation and maintenance units. The battalion consists of a major who can ordinarily function as a division superintendent; a staff; a headquarter's detachment which contains administrative personnel, dispatchers, etc.; one operating company consisting largely of train crews; one maintenance of way company; and one maintenance of equipment company. New railroad construction and reconstruction will be done as a rule by general service regiments attached to corps and Army headquarters.

#### Railway Battalions

There are no railway troops in the regular army, but 36 battalions have been formed in the organized reserves. These have been allocated to existing railroad systems and are now in course of organization. One of the requirements is that all personnel of the battalions allocated to the B. & O. for example must normally be in the employ of that railroad. It is expected from this arrangement that, in time of war, experienced personnel will be available immediately, and that an esprit will exist from the start which will aid efficient operation of military railroads. As fast as the line has advanced so supplies can be brought up, these troops will move steadily forward keeping as close as possible behind the troops doing the fighting. The army engineer in the theater of operations will have four sector engineers, one for each system and one for the base, to handle all construction work in their respective sectors, placing engineers and labor troops according to the relative urgency of the different classes of work.

The Chief of Engineers, War Department, will on the outbreak of hostilities order from previously prepared lists the track material for repairs on the lines in Florida, a full outfit of transportation tools and supplies needed for construction and maintenance of way. Emergency repair shop trains, and a permanent repair shop train equipped with tools and equipment for tool rooms, will be ordered by him on previously prepared drawings and specifications, and assembled and dispatched to the base near Baldwin. List of spare parts of railway equipment necessary for reconstruction and maintenance in addition to that to be obtained from the railways back of the line will be purchased and shipped to the base, as will also necessary office furniture and supplies.



The railway section of the office of the Army Engineer in the theater of operations will be organized as follows: The Chief of section will have one assistant acting as deputy chief of section. He will also have the following officials: general auditor, finance officer, general superintendent of transportation, with a troop movement officer and a car service officer; a general freight and passenger agent with a chief of freight bureau and a chief of passenger bureau; an engineer maintenance of way; a general superintendent of power; a personnel officer, a supply officer; a general superintendent and subsistence officer; general superintendent of telegraphs and telephones.

Promptly upon the determination of hostilities the officers selected from the regular service previously instructed will report to the Army Engineer for instructions. They will be required to familiarize themselves with the duties of liaison officers at detraining stations and to know the work expected from each line they will operate until the reserve officers selected can report for duty, when they will transfer their duties to them and be released to report to their regiments. Previously prepared telegrams will be sent to reserve officers designating stations at which they are to report, also to civilian personnel. Railway lines will be advised of the traffic they are expected to handle, and the maintenance, repairs and improvements they are expected to make.

A list will be prepared showing for each station on each of the lines in Florida its passing track capacity, capacity of other tracks, whether or not fuel facilities exist, water capacity, stock pens with chute, freight station area, whether provided with ramp, telegraph office and wye, and indicating its transportation regulation station.

Lumber and timber concerns will be directed to prepare and ship ties, piling and timber to the base. Communication will be made with the Chief of Engineers, War Department, with a view to keeping informed of the progress made in producing and shipping the necessary rail and fastenings and other supplies coming from outside of the corps area.

The parent railroads will be levied on for the necessary equipment; they in turn will be authorized to draw on connecting roads for their quota thereof.

The Chief Engineer will require a revolving fund to pay civilian employees. Office space will be provided for the use of railway officials. It is the main intention of the project to provide for the promptest possible physical accomplishment of what is necessary to secure the aims of the expedition.

It is expected that working on the lines mentioned the organization should be in fair running order within ten days or two weeks.

When the military operations have proceeded beyond the next division points and the military front is sufficiently consolidated, the railroad divisions passed will be turned over to the parent railways for operation. The Baldwin base may become an intermediate depot and advanced bases and regulating stations be established as needed at the new locations. The campaign will proceed in similar lines until the enemy is destroyed or driven out of the State.

In conclusion I wish to point out that army organization is a development based on many centuries of experience. It has been tested many times under varying conditions and has been proven to be sufficiently consistent with its aims, as well as sufficiently elastic in its adaptability to changing conditions, to accomplish its main objects. Similarly, railroad organization, while not so old, has been most intensively developed and tested, and, as we have it in America is the most advanced of its kind in the world. It would be an unpardonable reflection on these two wonderful systems of organization if either

of them contained any element which made the most efficient co-ordination impracticable. The basis of co-operation and co-ordination is now legally complete. The Secretary of War, representing the President, can through the Assistant Secretary maintain the necessary relations with the railroads of the zone of the interior. These railroads liaison at the frontier of their operations with the engineer of the fighting army, who in turn is under the commanding general of the forces in the theater of operations, who in turn is under the Chief of Staff of the Army, who again in turn is under the Secretary of War, thus completing the basis ring of co-operation and co-ordination. Having in mind the recent example of the World War, and the spirit of devotion there shown by members of both services to the main idea of accomplishing the result needed in the interest of the country; and having regard also to the possibilities of further study, we expect that our railroads in time of war will operate in a way that can not be excelled by any other country.

## Improvements Made to Fairbanks-Morse Diesel Engine

ONE of the reasons for the increasing interest in the application of Diesel engines to a wide variety of railway power problems, such as the furnishing of power, light and pumping service, is in the increased dependability of these prime movers due to the constant mechanical improvement of the designs. Normal progress has indicated that an engine which would start without the aid of auxiliary ignition devices was an advantage and an improved design incorporating this feature has been brought out by Fairbanks, Morse & Co., Chicago.

No changes have been made in the general type of engine as the two cycle principle has been adhered to and the combustion scheme is based on solid injection of fuel as in the former Type "Y" engine. The engine operates under a compression of 500 lb. and the increased heat due to this compression fires the fuel without the aid of a torch when starting.

Piping has been eliminated or enclosed, the control simplified, and what few adjustments there are, have been made more accessible without sacrificing simplicity of construction and reliability of operation.

At the present time the engine is built in ratings of 37½ and 50 hp. for the single cylinder unit; 75 and 100 hp. in two cylinders; 150 hp. in three cylinders; 200 hp. in four cylinders; and 300 hp. in six cylinders.

The primary consideration has been to develop an engine of the greatest reliability with low maintenance costs, maximum accessibility and one which is simple to operate. Fuel economy was also carefully considered, although no sacrifices were made in ultimate performance to secure the lowest possible test consumption of fuel. The tests which have been conducted show a fuel consumption of 0.42 lb. of 18,000 B.t.u. fuel oil per brake horsepower-hour at full rated load. One of the characteristics of the engine is that the fuel consumption curve is practically a straight line on ratings varying from 75 to 120 per cent load.

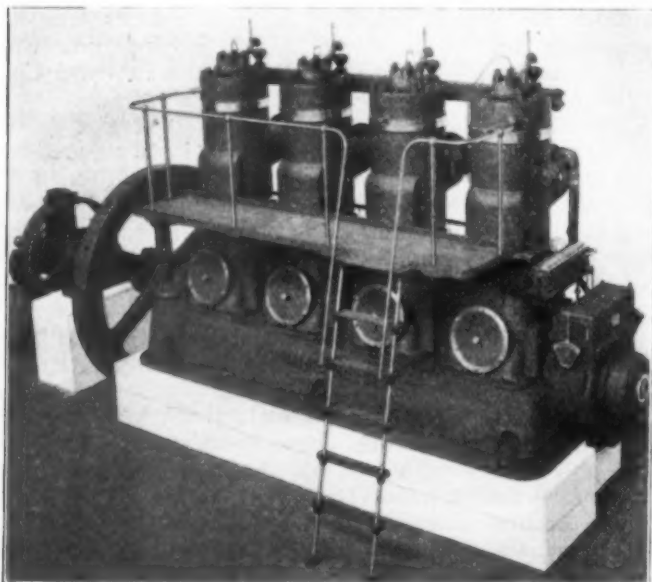
From the sectional view it will be noted that the fuel is sprayed into a combustion chamber. This part of the design is quite similar to the former design except that certain improvements have been made in the shape of the chamber and in the neck leading to the cylinder. One advantage of this combustion chamber is that the air, on the compression stroke, rushes through the neck of the chamber and meets the atomized spray from the

injection nozzle. The turbulence caused by this meeting of the air and fuel aids in preparing the fuel for complete combustion and also holds the charge in suspension. Owing to this thorough preparation of the fuel the final burning is accomplished without an initial rise in pressure, resulting in true Diesel indicator cards. This system also eliminates the need for high injection pressure or a complicated injection nozzle of a type where the oil is sprayed through extremely fine holes.

When the piston reaches the end of its stroke, the temperature of the fuel charge in the auxiliary combustion chamber is raised to the ignition point and combustion begins. The hot gases then expand through the neck of the chamber and combustion is completed in the cylinder. In this way complete combustion is obtained as shown by the clear exhaust, from light load to over-load conditions. Moreover, the combustion does not cause any rise in pressure above the compression pressure, and the expansion is, therefore, similar to that of steam.

The fuel injection system is of the same general design as used in the former engine with the exception that the pumps are grouped on a pump deck and enclosed in a case which serves as the fuel oil reservoir. The change in the design has provided a more compact arrangement since it eliminates suction piping. By having the fuel pumps submerged the possibility of their becoming air bound is prevented. This fuel injection system, governor and the complete control of the engine centers in a unit mounted at the right end of the engine as shown in the general view.

Starting is accomplished by means of compressed air, the air being stored by an auxiliary power compressor in

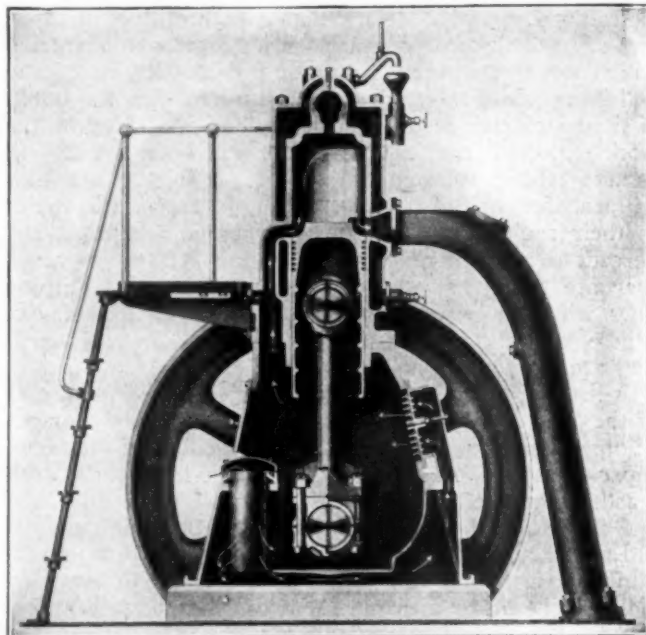


General View of the New Fairbanks-Morse 200-hp. Type Y Diesel Engine

steel tanks of sufficient capacity for several starts. The pressure used for starting is approximately 200 lb.

Another important point in Diesel engine design is in the arrangements which are provided to eject the burned gases at the end of the expansion stroke. One of the improvements which has been made in the new design is that this scavenging air is transferred from the crank case to the cylinder through a passage outside the water jacket, thereby eliminating the necessity for air ports in the pistons and allowing the cylinder to be completely water-jacketed for its entire length. Reference to the sectional view will give an idea of how the scavenging air circulates through the base and to the cylinder. Before

the opening of the air inlet or scavenging ports, which occurs shortly after the opening of the exhaust ports, the exhaust pressure drops to virtually atmospheric pressure. The air which has been compressed to a low pressure in the crank case, enters the cylinder when the scavenging ports are uncovered and is deflected by the piston to the upper portion of the cylinder, clearing out the remaining burned gases and charging the cylinder with fresh air. This scavenging air is supplied by the piston and crank case acting as a pump. On the upstroke of the piston, air is drawn through a screen and auto-



Transverse Section Through the Engine—The Path of Scavenging Air Is Indicated by the Arrows

matic air valve, into the crank case and is compressed on the working or downstroke.

Cooling water is introduced into the jacket of the head at both a top and bottom connection with the result that the whole jacket has a practically uniform temperature. The ridges of the cylinder ports are also cored for water passages and are thus kept at a uniform temperature. At the cooling water outlet, at the top of the cylinder head a spout is provided that discharges into a water header. This arrangement gives a visual check on the water circulation. Where the cooling water supply is limited and a re-circulation system is necessary, a closed connection from the cylinder head is used. In either case thermometers are provided for checking the cooling water temperature.

In the new design, several changes have been made in the lubricating system. The new system is entirely automatic, consisting of a double lubricating oil pump and an outside filter. The lubricating pump supplies oil to the mechanical lubricator, governor case, and main bearing wells. The governor case and main bearing wells are inter-connected and the oil is maintained at a constant level in them by the lubricating pump.

Used oil drains from the crank case to the oil sump and is pumped from this sump to the filter. The filter is entirely separate from the engine and is an efficient two-compartment type of large size, permitting the slow settling and filtering of the oil. Clean oil only is pumped from this filter back into the engine. One of the rather unique features of the lubricating system is the entire absence of oil caps, grease caps or oil holes. An oil can is unnecessary.



# "Wisdom Cometh from Discussion"

*One way of maintaining and intensifying interest in campaigns to promote efficiency and better service*

REFERENCE was made in an article on the Central of Georgia Railway in the *Railway Age* of January 24, 1925, to the large part which conference and discussion groups play in the educational program of that system. It is only by getting intelligent co-operation and stimulating constructive suggestions from the co-workers—officers and workers—that materials and human energy can be conserved in the interests of more efficient and more economical operation.

The great problem in a campaign to improve the service or operate more efficiently is to maintain a high degree of sustained interest in the campaign. The various local and departmental meetings and conferences which are frequently held on the Central of Georgia, and which culminate in the annual efficiency meeting, have gone a long way toward solving this problem.

The annual efficiency meeting is held as soon after the first of the year as complete data are available for the operations of the previous year. The meeting this year was scheduled for February 2 and 3, but had to be postponed until February 23 and 24 because of the flood. The thirteenth annual system efficiency meeting, as it was designated, was held on the latter dates at Macon, Ga. Between 900 and 1,000 officers and employees participated in the event—an effort is made to release as many of the workers as possible to attend the meeting, because of the direct benefits which have been apparent from such meetings in the past. The employees gathered at the railway station at 9:30 a.m. and then, grouped by divisions and with appropriate banners, and headed by the mayor of the city, the executive officers and the Right Way Band of 50 pieces, they marched through the principal downtown streets of the city to the Grand Theatre, where the conference sessions were held. The seating in the theatre was by divisions, around the division superintendents.

The keynote of the meeting was sounded at the opening session. A local pastor in making the invocation, stressed the fact that "faithful toil is also holy worship." The opening address by W. D. Anderson, a director of the railroad and a large shipper, was on the topic, "Selling Service—Plus." He spoke from the viewpoint of a shipper and emphasized the importance of the quality of the service. "Service varies in quality as we will it to vary," he said, and then explained how the extra effort or touch—the service plus—appealed to the shippers and receivers of freight, or to the passengers. "Pour yourself, the best there is in you, into your everyday task," he said, and then commented on the "joy of service" and the "dignity of work."

Morning, afternoon and evening sessions were held on the two days of the conference. Short reports were made on a great variety of subjects and these were thoroughly discussed. Employees showed no hesitancy in taking part in the discussions and made many helpful and constructive suggestions. Several of the women employees and also members of the colored group participated. Among the more important topics considered were how to improve public relations, passenger traffic problems, solicitation of freight traffic, conservation of stationery and supplies, matters relating to accounts and the accounting department, keeping down the costs of telegraphing, fuel conservation, improving the record of personal injuries, re-

ducing highway crossing accidents, and the operation of motor cars.

The consideration of freight loss and damage came in for a large share of attention. Incidentally, the efficiency meeting is an outgrowth of the meetings which were originally held to consider the prevention of loss and damage to freight. The assistant general manager, G. L. Candler, who was responsible for this part of the work, has taken over the details of arranging for the annual efficiency meetings and he presided throughout the sessions. Under the head of freight loss and damage a variety of reports were made covering the handling of perishables, rough handling of cars, loss of entire packages—preventing overs and shorts, investigating and handling exceptions at agencies, duties and responsibilities of receiving clerks, loading and storing freight in cars, handling explosives and inflammables, guarding against defective equipment and preventing robberies.

Throughout the various discussions records were often compared by divisions or agencies. This frequently stirred up keen rivalry between the representatives of the divisions and was undoubtedly a large factor in maintaining the interest at a high point—often almost at the breaking point, and sometimes rich in humor—throughout the three long sessions on each of the two days. The discussions were never dull or dry; the audience seemed almost as keen and attentive at the end of a long session as at the beginning.

The climax was reached on Tuesday evening when various trophies were awarded. One of these is a large silver loving cup, which is given to the division making the best combined record for fuel conservation, prevention of personal injury and the reduction of loss and damage to freight. This cup has been held by the Savannah division for two years, but was awarded this year to the Chattanooga division.

A silver cup was presented to Atlanta as the Class 1 agency making the best record in efficiency in the prevention of loss and damage to freight; a similar cup was presented to Americus as the Class 2 agency making the best record in this respect. Gold-bronze medals were presented to 55 agents for making 100 per cent records in the handling of freight during the year. Recognition was also given to those agents who made a 100 per cent record in the accurate handling of their accounts, special recognition being given to those who had maintained such record for a number of consecutive years.

After the award of trophies, goals were set for the 1925 operations. In the first place it was decided to adopt the slogan, "Hit the Ball and Beat Them All." The following goals were set up: A ratio of loss and damage of freight to freight earnings of .6 per cent; keeping down the total personal injuries for the year to 1,000; fuel consumption in passenger service 17 lb. of coal per passenger train car-mile; freight service, 150 lb. of coal per thousand gross ton-miles; switching service, 135 lb. of coal per switch engine-mile.

At this point departments or different groups started to present resolutions of what they proposed to do in the coming year. These were so many in number and so enthusiastically presented that they almost swamped the meeting.

The conference closed with appropriate addresses by

President L. A. Downs and Roy V. Wright, managing editor of the *Railway Age*, the latter speaking on the "Golden Rule—Plus." Mr. Downs paid a high tribute to his co-workers and made a rather unique suggestion as to the attitude of the employees toward a car of freight. "Think," he said, "what wonderful results would come about if every one of the 10,000 members of the Central of Georgia family would get busy and solicit business for

our railroad this year. Does any one doubt that that would result in a greatly increased volume of traffic? The first step is to get the business and the next is to take care of it and to move it promptly. We consider our passengers as guests . . . when they ride on the Central of Georgia. *Why can't we consider our car of freight as a guest?* Give it the best sort of treatment, see that it is not roughly handled and that it reaches its destination on time."

## The Need for Simplified Passenger Fare Divisions

*Present complications shown to be out of proportion to amount of revenue—Improvements suggested*

By E. J. Johnson

Auditor Passenger Receipts, Northern Pacific

**F**OR some years, sentiment has been growing, favorable to the adoption of some simplified basis for division of interline passenger fares, which would produce equitable results at a minimum expense. The present method, requiring close analysis of the construction of fares—with its varying territorial bases, short line principles applicable to circuitous route traffic, and its countless individual requirements and joint agreements—is expensive, highly technical, productive of endless disputes, and involves a refinement of accounting which does not seem warranted by the revenue results obtained.

With the development of interline traffic and the resulting multiplicity of routes and fares, there has been a continual pyramiding of complications, due to the efforts of each carrier, or territorial groups of carriers, to obtain the most favorable basis. There has been no simplification, except to the extent that the adoption of standard rates per mile, the more general construction of fares on principal gateways, and a tendency to decrease circuitous route fare applications—have naturally afforded some relief.

### Formerly Traffic Department Function

During the early history of interline traffic, "division work" was quite generally performed in the traffic department, but gradually such work was transferred to the accounting department—the logical place for it. As a natural result, the new generation in the traffic department has not had the benefit of the detail experience, and the older generation, through not being in daily contact with details of passenger divisions, is not able to keep abreast of the many changes constantly taking place, which makes settlement of disputed division questions more difficult, with the result that more responsibility has gradually devolved on the accounting department.

There are division disputes which are no nearer settlement than when differences first developed, many years ago. Division circulars are in effect which are not observed by carriers party thereto because of disagreement as to interpretation. Divisions have been made on one basis eastbound, and another westbound via some gateways for years, due to disagreement on principles. The natural tendency to hold fast to benefits enjoyed in the past, has, in some cases, blocked all efforts to reach an agreement.

### Uniform Mileage Rate an Assistance

The first division principle recognized, was to divide a fare as constructed, when based over a point of interchange, and it is entirely logical and defensible. Prior to June, 1918, when there was no standard rate per mile, it was perhaps natural to employ a mileage pro-rate basis in one part of the country, and a rate pro-rate basis in another. With the uniform basic rate of 3.6 cents per mile prevailing, except in comparatively restricted territory, past objections to uniformity in fundamental division principles are no longer well founded.

In division of passenger fares, there exists a form of unwritten law in the so-called "short line principle," which ignores actual routes of travel and requires use of fictitious routes in many instances, the justice for which is somewhat questionable, as it owes its existence to theory, evolution and precedent, and is not founded on facts and equity.

The passenger usually selects his route for personal reasons, to visit new localities or for change of scenery; he becomes attached to the service on certain railroads, or other reasons may influence his choice of routes. In some instances passengers are routed through solicitation, which, after all, is an indirect form of actual selection. There are numerous instances when passengers pay higher fares to travel via circuitous routes. Nevertheless, disregarding all these facts, participating carriers require proportions established via the most direct route, the "short line," which results in establishing fictitious divisions via routes not actually traveled, in order to observe short line requirements.

In view of the foregoing, it is not apparent why carriers which cannot influence the selection of routes, should receive proportions via one gateway or junction, when passengers elect to go by another.

### Present Complications

To divide a passenger fare, it is first necessary to analyze the construction of the fare, in order to determine locals contributed, and whether they are contributed "via short line to or from pro rating gateways," and second, to establish primary divisions over Trans-Continental Passenger Association gateways, followed by redivisions east and west thereof, practically every fare having its own independent division, as against the "Zone" basis



which is quite extensively used in freight rate divisions.

Division of round trip fares is particularly complicated due to the wide diversity of circuitous routes and arbitrary construction of fares.

Practically all carriers issue "division circulars" containing their requirements. Others have joint agreements embracing a number of carriers interchanging traffic at common junctions. The various passenger traffic associations promulgate bases to be used in or through their territory. These circulars, agreements, and contracts can, at best, state the requirements in a general way only, leaving much to the judgment of the individual, which leads to claims, correspondence, reference of disputes to traffic departments, followed by long drawn out correspondence, often with no possibility of agreement.

It takes several years to educate even the most intelligent clerk to a thorough knowledge of passenger divisions, and experience has shown that many clerks of more than average ability in other respects, cannot master its complications. Training clerks in this highly specialized work is a slow and expensive process. It is productive of errors which result in claims, followed by subsequent investigations and extensive correspondence in rectifying errors, obtaining cancellation, etc. With the growing employment of women in railroad offices, making this field less attractive to the ambitious young man, it has been found increasingly difficult to obtain the class of help from which expert division clerks are developed.

#### Reasons for Opposition to Change

When carriers divide freight revenue in a large measure on zone percentages, it appears inconsistent for the same carriers to perpetuate the complicated, technical bases for the division of passenger fares, where the revenue involved is much less, and a difference in bases would affect revenues in a slight degree only.

Those opposed to simplification entrench themselves behind the ultimatum that they will not consider any change which will result in less revenue than they now receive. No simplified basis can be devised which will yield exactly the same results as at present, and application of any proposed simplified basis to a test period is unsatisfactory and inconclusive, because whatever the results may be, some other period might show the direct opposite, due to seasonal travel, fluctuation of traffic between certain points, etc. It does not seem reasonable to assume that comparatively slight gains or losses in revenue will always remain an insurmountable obstacle to the simplification of passenger divisions, and that no progress can be expected in that direction. If the freight basis as a whole is founded on fundamentally correct principles—and this is generally admitted—it would appear that we are over-meticulous in passenger divisions.

#### Zone Basis Proposal Did Not Meet with Success

A few years ago, following federal control, a simplified basis of passenger divisions, for convenience referred to as the "Zone" basis, was under consideration, but failing to meet with general support, was not adopted. The term "Zone basis" was somewhat of a misnomer, because, though providing for definite zones, it was not proposed to apply "zone" percentages to points located therein, as is the case when this term is used in connection with freight divisions.

Although the basis then proposed was founded on simple fundamental principles, its simplicity was discounted somewhat because of the zone feature. This required first—determination of the zones, in which starting point and destination were located. Then, there had to be division over the primary zone pro-rating gateway. There was necessitated a redivision of amounts accruing

to and from such gateways over other zone gateways or points of interchange. All this required a series of operations, the necessity of constant reference to zone charts and the like.

The advisability of, or necessity for establishing zones, if not to be used on a percentage plan, is questionable and largely a matter of following precedent. The general recognition of Trans-Continental Passenger Association and other gateways, has resulted in establishing imaginary lines which divide the country sectionally, and to obtain maximum simplicity, these lines would have to be erased.

#### Arbitraries

The simplified zone basis was also somewhat complicated by the proposal to perpetuate recognition of bridge, transfer, and other similar arbitraries, requiring constant watchfulness, to see that such arbitraries were not overlooked. This particular feature, that is, the advisability of its perpetuation or the contrary, should possibly be approached and considered from several angles.

First, it might be well to turn the searchlight of analysis on such requirements, the reason for their existence, and the justification for their continuance or elimination.

On the surface, it seems unfair for one carrier to demand and perpetually receive, an arbitrary for carrying a passenger across a bridge, far out of proportion to the amount contributed to the fare for that haul, when other carriers build equally, or more expensive, bridges and terminal facilities, but exact no arbitraries.

A railroad bridge is constructed for several reasons, viz: to connect arteries of travel, resulting in greater transportation conveniences for the public and the carriers; to give carriers access to commercial centers not reached otherwise, with consequent benefits accruing from traffic to and from such cities, and to project extensions of individual carriers' rail facilities. Having constructed a bridge and enjoying the benefits accruing therefrom, a perpetual arbitrary assessed against carriers participating in traffic moving in part over such bridge, even though they may be hundreds of miles distant from it, may not be entirely justifiable.

Often, the cost of bridge arbitraries, wagon and bus transfer charges, etc., is participated in by connecting lines as a matter of competition with other roads in connection with which no such transfers are necessary, settlement being made between the carriers directly concerned, there being no recognition of such arbitraries by disinterested carriers, in division of through fares. If it is impracticable or impossible to eliminate consideration of bridge or transfer arbitraries, there is apparently no reason why they could not be settled between the carriers directly concerned, thereby removing them as a factor in the division of fares; for example, as the Parmelee Transfer Company charges in Chicago are now handled. Again, if there were insurmountable objections to such procedure, the interests of those concerned could be protected by adding the arbitraries to pro rating factors in the case of fares, and using constructive mileage equivalent to arbitraries in case of a mileage pro-rate basis.

#### "Short Line Requirements"

Reference has been made to "short line requirements," as any proposed simplification of passenger divisions would have to satisfactorily dispose of this elementary principle.

It will doubtless be agreed that the principle would have to be applied to a limited extent, so that where several carriers operate between the same points, such as St. Paul and Chicago, they would receive the same proportion, as proportions of connecting roads should not fluctuate, dependent on the actual road used. In these

cases the short line fare, or short line mileage applicable to the fare, should be used in division.

A general basis, in which actual points of interchange would govern, which would permit division of the entire fare from starting point to destination—subject only to deduction of fares contributed to or from interchange points—on a pro-rate basis, either by use of short line mileage or fares for each carrier, would effectually standardize divisions and determine proportions for all lines in one operation, almost mechanically. The present basis requires several distinct operations, which should, in the interests of economy, be eliminated.

By removing the necessity of ascertaining short lines to and from gateways, via several combinations of routes, and confining short line principles to "one carrier hauls" via actual points of interchange, standard distance tables could be prepared showing short line mileage between principal points, which would conserve much time, would be invaluable to division clerks, and would transform much of their work from mental to mechanical.

#### Fundamental Bases

Now as to the fundamental bases:

As herein stated, much of the prejudice in favor of, or against, either the rate pro-rate or mileage pro-rate basis, has been automatically removed through the general adoption of a uniform basic rate per mile.

The rate pro-rate basis lacks the stability of the mileage basis, as fares change to a great extent, while distances are practically permanent.

The use of fares as pro-rating factors, would require reference to tariffs of all lines participating in each fare—a no inconsiderable task in itself—but would be an advantage in that the fare is often the same between two points, whereas the distances are different. The mileage pro-rate basis would require reference to permanent joint distance tables and the "Official Guide" only.

A standard table of fares would be in need of more or less revision, whereas distance tables once prepared, would require few changes.

On traffic to or from excepted territory in which the basic rate of 3.6 cents per mile does not prevail, the abnormal rate situation would be taken care of automatically on a rate pro-rate basis. On a mileage pro-rate basis, pro-rating mileage for roads thus affected would have to be increased or decreased at the ratio which the local rate per mile bears to the standard basic rate, distance tables to publish such "constructive" mileages between principal points.

The fact that a uniform basic rate per mile has been established, places all railroads on a revenue parity when traffic is confined to one carrier, except, of course, where a longer line meets the short line fare of a competitor, and theoretically, conditions should not change materially because a trip continues over two or more roads.

Considering divisions from the standpoint of equity alone, and ignoring prevailing requirements, no basis can approach nearer to fairness than that which allows each carrier assisting in transportation of a passenger from one place to another, a proportion of the through fare according to its pro-rata share of the service performed. There is no fundamental injustice in such a basis.

However, local and competitive conditions throughout the country have resulted in fares which are lower than the basic rate, particularly on long haul traffic, which necessarily complicates matters, as roads in one section of the country may contribute the full basic rate and others less, in construction of a through fare, so that a mileage pro-rate would naturally result in distortions, giving roads which contributed less, a share of the greater revenue contributed by others. Thus, a mileage pro-rate

basis would disturb the relative ratio of fares contributed in construction, to a greater extent than a rate pro-rate basis, as the latter would automatically prevent one or more lines from receiving more than local fares, or receiving revenue at a greater ratio than its contribution to the through fare.

#### Advantages of Plan

There can be no reasonable doubt as to the material benefits which would be derived from a simplification of passenger divisions. Such benefits would include direct economies in clerical expense. They would include the elimination of the necessity of formulating special divisions and issuing new circulars every year, covering summer tourist and other reduced fares. They would save the expense involved in protracted meetings at which those and other division questions are under consideration. There would be an almost total elimination of claims, with reduction of correspondence and incidental expense, and the handling of interline accounting would be greatly expedited.

Any simplification hoped for will have to be founded, first—on equity, and second—on simplicity, and in order to obtain maximum benefits, the basis should be as nearly mechanical as possible, with a minimum possibility of misinterpretation.

As the foundation for such a plan, the following is suggested:

1. Fares based on points of interchange to be divided as constructed.
2. Fares not based on points of interchange to be divided from starting point to destination via actual route of travel, using short line pro-rating factors for each interested carrier.
3. Thorough study should be made of the merits of rate pro-rate and mileage pro-rate divisions on the foregoing plan, with the view to ultimate adoption of the basis found to be most equitable.
4. Elimination of bridge and transfer arbitraries as such, so that if perpetuated, they would be included in pro-rating factors, either by addition of arbitrary amounts or distances thereto.
5. Round trip fares to be divided one-half in each direction, on the same basis as one-way fares.
6. Preservation of steamship arbitraries and proportions.

It appears certain that simplification in some form or other *must* come eventually, and to quote a well known advertising slogan, "Why not now?" It is merely a question of finding an acceptable method, there being no doubt as to the need of simplification and the benefits which would automatically accrue as a result.



Resplendent Multiple-Unit Train, Great Indian Peninsula's Bombay Suburban Electrification



## General News Department

The joint Congressional committee appointed by the last Congress to investigate the Northern Pacific land grants expects to begin hearings at Washington on March 16.

The Interstate Commerce Commission has issued orders extending the time for fulfilment of its automatic train control order in the case of the Central of New Jersey and the Chicago, Milwaukee & St. Paul to July 1, 1925. The commission had denied an extension for the Central of New Jersey but on petition of the company reconsidered its action.

B. L. Winchell, president of the Remington Typewriter Company, has been named as chairman of the transportation advisory committee of the Sesqui-Centennial Exhibition Association, Philadelphia. Mr. Winchell was formerly vice-president of the St. Louis-San Francisco and the Chicago, Rock Island & Pacific, director of traffic of the Union Pacific, and, during federal control, was regional director of the Southern region.

The "full-crew" bill has made its "biennial appearance" before the committee on railroads of the Pennsylvania legislature at Harrisburg, and a hearing was held on Tuesday of this week. The same arguments were used in favor of the bill as when the full-crew law was enacted, in 1911; and the arguments used against the bill were the same which secured the repeal of the law in 1915. The committee has reported the bill with a "negative recommendation." About 200 persons were present at the hearing.

Tickets for New York City theatres may now be bought on certain trains of the Pennsylvania Railroad, uniformed agents of the Equity Theatre Service going through the cars and offering the tickets at fifty cents advance over box office prices. Before offering the tickets these agents will distribute pamphlets containing a list of the plays. The trains on which this scheme is being tried are those leaving Philadelphia at three, four and five o'clock p. m. and Atlantic City at 2:30 p. m. Tickets will be delivered at hotels and residences when the purchaser so desires.

### Sykes Two-Car Gasoline Motor Train—Correction

The *Railway Age* of February 14 contained a description of a two-car gasoline motor train for the Big Four, on page 401, in which the address of the Sykes Company was given as Winthrop Harbor, Ill. The correct address is St. Louis, Mo. On page 402 it was stated that the cars were equipped with Stafford roller bearings; it should have read Hyatt roller bearings.

### Round-Up of Freight Thieves

Five persons were arrested as railroad car robbers and 25 as receivers of stolen property on March 6, by the police of Harvey, Ill., and detectives of the Chicago, Milwaukee & St. Paul, the Chicago, Burlington & Quincy, and the Grand Trunk Western Lines. The men had been stealing property from cars in the yards of all three roads. Three truckloads of merchandise, valued at \$1,300, were recovered.

### American Railway Association

#### Headquarters for London Congress

The American Railway Association will have headquarters for its delegates to the International Railway Congress to be held in London on June 22 to July 12 at the Hotel Cecil, the Strand, London. Representatives of railways which are members of the association are invited to make use of the facilities at the headquarters, which will include translations into and from the French, stenographic service, assistance with bookings and the like.

### Transportation Division at Richmond, April 8

The annual session of the Transportation Division of the American Railway Association, which will be held at the Jefferson Hotel, Richmond, Va., and which was originally called for April 9 has been set for Wednesday, April 8, in order to avoid conflict with the meeting of the Atlantic States Advisory Board which is to be held at Philadelphia on the ninth. The business before this session will be the consideration of and action upon the reports of the general committee on car service, the committee on demurrage, storage, reconsignment and diversion, the committee on freight handling service, the committee on railroad mail and the committee on records.

### Alleged Swindle Using Name of C. P. R.

What is purported to be a gigantic swindle whereby many United States hotel men and business men have been victimized to an amount estimated at \$500,000 has been brought to light in Canada. It is alleged that a gang using the name of the Canadian Pacific printed a series of letters of credit and travelers' checks bearing the name of the C. P. R. and broadcast them in the United States. No such checks are issued by that railway, according to a statement issued from offices in Montreal, but the fact did not appear to be generally known, inasmuch as the alleged swindlers were said to have been able to cash their paper in the United States, and this returned in due course to the Canadian banks to be cashed.

### Additional Accountants and Engineers

#### Needed for Valuation Work

The independent offices appropriation bill, approved by the President on March 3, includes provision for increased funds for the Interstate Commerce Commission to expedite its work of the valuation of railroad property; and a considerable number of additional employees in various specialties will be needed.

Examinations have been announced for accountants and auditors experienced in accounting of steam railroads or other public utilities, and civil, electrical, mechanical, and signal engineers. In most of these lines there are various grades of positions to be filled, ranging from the junior men to the seniors or supervisors. Information and application blanks may be obtained from the United States Civil Service Commission, Washington, D. C., or the secretary of the United States Civil Service Board at the post office or customhouse in any city.

### Pennsylvania Employees' Savings

The Provident and Loan Association of Pennsylvania Railroad Employees, in its annual report for the first full calendar year of operation shows a membership of 39,663, a gain in 12 months of 24,394. Today approximately one employee in every five on the company's payrolls is participating in the stock-purchasing, savings, increased pension, home-buying, or loan features of the association.

A total of 44,528 shares of the railroad company's stock has been bought for employees through the association, and altogether 11,165 employees are enrolled as purchasers of stock and other securities of the system. The deposits in the savings fund department totaled \$5,071,821, a gain during the year of \$868,319; number of members holding savings fund accounts, 27,730.

Over 700 members provide for increased pensions upon retirement, through the systematic setting aside of small monthly deposits, and 420 members are purchasing their homes through the association, the amount of building loans authorized for this purpose being \$1,322,594.

This provident and loan association was organized in July, 1923. It has the sanction of the company's management, but the company does not guarantee its results financially.

## REVENUES AND EXPENSES OF RAILWAYS

MONTH OF JANUARY OF CALENDAR YEAR 1925

Name of road	Average mileage operated during period	Operating revenues			Operating expenses			Operating ratio	Net from railway operation	Operating income (or loss)	Net after rents, 1924
		Freight	Passenger	Total (inc. misc.)	Way and structures	Maintenance of equip.	Traffic				
Akron, Canton & Youngstown.....	171	\$209,987	\$507	\$210,494	\$34,269	\$25,235	\$11,068	65.40	\$78,559	\$66,163	\$32,094
Alabama & Vicksburg.....	141	199,739	63,388	263,127	32,268	50,626	9,360	74.10	74,088	46,725	48,991
Vicksburg, Shreveport & Pacific.....	188	221,882	70,310	292,192	31,196	65,087	12,034	90.90	288,532	8,260	7,325
Ann Arbor.....	293	394,651	33,531	428,182	60,087	93,436	209,535	80.00	88,616	66,552	38,860
Atchafalaya, Topeka & Santa Fe.....	9,178	10,369,940	3,498,441	13,868,381	1,420,847	3,430,847	3,367,096	71.80	4,280,075	2,954,470	1,825,465
Atchafalaya, Topeka & Santa Fe.....	1,908	2,064,629	308,176	2,372,805	383,701	536,667	52,382	71.10	725,092	636,556	502,198
Atchafalaya, Topeka & Santa Fe.....	858	785,813	117,893	903,706	68,954	186,732	9,161	63.50	413,856	387,107	329,011
Atlanta & West Point.....	93	140,347	77,357	217,704	24,954	31,843	9,779	58.50	41,121	25,910	24,192
Western of Alabama.....	133	163,114	73,038	236,152	37,685	52,149	10,007	76.60	60,728	45,588	45,621
Atlanta, Birmingham & Atlantic.....	630	377,779	44,432	422,211	81,210	95,844	23,298	88.00	50,433	36,670	36,282
Atlantic Coast Line.....	4,869	4,780,784	2,032,213	6,812,997	996,035	1,367,722	188,834	71.10	2,156,838	1,755,537	1,584,503
Charleston & Western Carolina.....	342	256,905	29,113	286,018	56,807	41,360	6,612	81.80	55,050	35,027	22,231
Baltimore & Ohio.....	5,292	14,558,255	2,258,443	16,816,698	2,150,827	4,429,274	3,559,506	82.60	3,144,939	2,299,399	2,008,077
Baltimore & Ohio Chicago Term.....	80	.....	.....	.....	35,815	35,815	1,731	88.20	35,284	5,018	76,271
Baltimore & Ohio Rapid Transit.....	23	84,410	100,787	185,197	29,992	47,641	1,628	112.00	23,862	-38,941	-55,573
Baltimore & Annapolis.....	616	520,192	66,797	586,989	117,658	117,658	200,182	75.00	153,146	100,444	130,191
Belt Ry. Co. of Chicago.....	32	.....	.....	.....	30,223	71,680	3,065	68.20	193,402	153,615	129,917
Bessemer & Lake Erie.....	228	809,997	19,804	829,801	357,591	14,794	289,340	87.60	105,394	75,354	58,825
Bingham & Garfield.....	32	48,242	.....	48,242	7,282	12,026	2,200	81.80	8,981	-1,122	11,628
Boston & Maine.....	2,228	3,780,460	1,707,774	5,488,234	893,320	1,347,523	59,008	86.80	830,734	565,560	349,355
Brooklyn Eastern District Terminal.....	9	100,317	108,706	209,023	6,737	10,667	75	59.50	43,995	37,006	38,160
Buffalo & Susquehanna.....	253	186,999	5,502	192,501	32,214	69,304	1,892	88.00	23,453	13,233	46,449
Buffalo, Rochester & Pittsburgh.....	590	1,078,112	136,112	1,214,224	129,808	374,108	26,281	85.90	180,169	145,137	187,156
Canadian Pacific Lines in Maine.....	233	229,557	28,185	257,742	25,424	43,371	4,662	71.10	79,291	68,291	56,503
Clinchfield Railroad Co.....	309	732,257	36,238	768,495	77,772	203,847	21,194	63.70	283,534	228,533	304,294
Central of Georgia.....	1,920	1,406,393	509,271	1,915,664	396,309	439,863	66,979	85.00	304,169	215,325	219,396
Central of New Jersey.....	692	3,346,340	720,094	4,066,434	456,703	526,011	38,957	77.30	1,011,910	665,501	580,031
Central Vermont.....	434	417,934	104,600	522,534	576,395	102,728	15,019	100.40	-2,257	-21,944	-20,608
Chesapeake & Ohio.....	2,610	8,021,298	808,659	8,830,000	1,343,506	2,390,184	106,371	76.60	2,161,700	1,719,599	1,845,869
Chicago & Alton.....	1,053	1,935,504	527,393	2,462,897	211,650	618,097	68,284	77.60	2,088,713	502,157	362,173
Chicago & Eastern Illinois.....	943	1,886,267	417,298	2,303,565	248,138	713,546	56,299	84.10	2,090,907	284,332	257,514
Chicago & North Western.....	8,462	7,901,884	2,272,409	10,174,293	1,066,587	2,648,984	159,708	81.80	2,090,907	1,287,542	982,549
Chicago, Burlington & Quincy.....	9,396	10,173,514	2,086,425	12,259,939	1,166,578	3,378,916	231,322	78.60	2,863,955	1,985,158	1,819,564
Chicago Great Western.....	1,496	1,500,448	329,677	1,830,125	167,080	445,451	67,785	83.20	334,169	251,152	137,747
Chicago, Indianapolis & Louisville.....	649	1,068,441	235,730	1,304,171	128,281	331,348	33,849	75.50	351,771	277,608	160,586
Chicago, Milwaukee & St. Paul.....	11,204	9,923,462	1,705,853	11,629,315	1,142,057	3,064,134	268,762	80.60	2,517,313	1,764,070	627,513
Chicago, Peoria & St. Louis.....	247	98,460	10,004	108,464	14,725	20,931	60,540	94.50	6,515	2,981	-20,877
Chicago River & Indiana.....	19	7,257,774	2,075,176	9,332,950	613,477	60,687	888	68.50	193,483	156,384	308,517
Chicago, Rock Island & Pacific.....	7,578	7,257,774	2,075,176	9,332,950	1,014,001	2,191,685	214,317	79.60	2,034,300	1,524,572	1,154,187
Chicago, Rock Island & Gulf.....	461	425,121	89,673	514,794	67,852	60,029	14,872	71.80	156,327	143,460	67,029
Chicago, St. Paul, Minn. & Omaha.....	1,749	1,600,098	478,722	2,078,820	184,279	434,640	39,707	78.10	511,672	383,210	314,314
Cincinnati, Indianapolis & Western.....	347	345,504	32,495	377,999	29,244	89,872	10,181	79.80	331,522	62,674	31,805
Colorado & Southern.....	1,056	905,854	128,395	1,034,249	92,977	240,652	41,661	74.50	263,557	219,888	189,358
Colo. & Denver City.....	435	807,532	185,124	992,656	63,567	193,352	13,685	62.00	337,577	336,409	339,665
Wichita Valley.....	271	138,973	25,973	164,946	28,482	7,267	52,458	51.20	85,318	75,402	53,445
Columbus & Greenville.....	167	97,030	31,939	128,969	45,336	18,817	2,626	93.90	8,286	6,722	-5,345
Delaware & Hudson.....	894	2,940,164	302,327	3,242,491	514,553	986,772	46,346	89.20	378,837	266,032	295,026
Delaware, Lackawanna & Western.....	992	4,972,230	1,121,894	6,094,124	1,611,992	1,644,896	167,794	79.80	1,388,912	857,643	914,166
Denver & Rio Grande Western.....	2,565	2,119,322	344,212	2,463,534	403,602	623,068	89,914	82.80	454,484	286,071	309,782
Denver & Salt Lake.....	255	292,820	21,560	314,380	43,175	104,468	6,020	81.10	63,529	53,246	45,021
Detroit & Mackinac.....	375	89,493	29,687	119,180	17,323	28,915	2,006	94.10	7,755	-2,398	-2,279
Detroit & Toledo Shore Line.....	61	332,600	.....	332,600	20,757	28,915	108,176	50.60	167,440	139,241	47,701
Detroit Terminal.....	26	1,076,230	9,095	1,085,325	13,675	11,885	2	75.20	43,198	26,883	23,367
Detroit, Toledo & Ironton.....	470	1,076,230	9,095	1,085,325	99,439	157,039	6,524	54.40	504,764	443,498	334,593
Duluth & Iron Range.....	276	99,380	9,340	108,720	112,348	112,348	1,033	231.50	-164,273	-172,336	-236,023
Duluth, Missabe & Northern.....	305	76,901	8,176	85,077	102,451	182,848	3,757	43.60	-351,966	-418,585	-496,909
Duluth, Winnipeg & Pacific.....	178	194,002	12,240	206,242	22,569	40,039	4,131	79.50	43,255	32,715	41,664
Elgin, Joliet & Eastern.....	459	2,044,195	48	2,044,243	136,969	157,078	12,824	65.10	787,114	699,580	463,531
Erie.....	2,055	5,832,835	1,074,718	6,907,553	2,246,508	2,467,001	152,078	95.00	381,097	49,797	168,887
New Jersey & New York.....	269	949,107	59,983	1,009,090	108,739	106,854	24,721	67.70	349,590	302,457	33,682
N. Y. Susquehanna & Western.....	45	22,694	100,026	122,720	21,497	24,896	1,222	100.60	-707	-4,122	-35,708
Evansville, Indianapolis & Terre Haute.....	135	251,327	56,556	307,883	51,246	66,327	3,645	94.00	22,861	-3,708	-20,863
Florida East Coast.....	146	203,371	4,337	207,708	32,768	32,768	2,044	68.00	77,180	68,401	49,791
Fort Smith & Western.....	763	1,239,238	855,256	2,094,494	312,795	297,577	28,709	67.10	770,768	660,350	503,197
Galveston Wharf Co.....	249	132,678	21,433	154,111	22,555	26,151	5,349	71.10	47,591	41,915	28,205
Georgia.....	13	.....	.....	.....	46,695	3,401	937	55.70	76,591	76,591	76,591
Georgia & Florida.....	406	82,581	13,411	95,992	495,028	52,251	22,899	87.80	60,284	43,672	70,879

\*Began operations January 1, 1925—formerly the Carolina, Clinchfield &amp; Ohio.



## REVENUES AND EXPENSES OF RAILWAYS

MONTH OF JANUARY OF CALENDAR YEAR 1925—CONTINUED

Name of road	Average mileage operated during period	Operating revenues			Operating expenses			Operating income (or loss)	Net from railway operation	Net after taxes, 1924.
		Freight	Passenger	Total (inc. misc.)	Traffic	Transportation	General			
Grand Trunk Western.....Jan.	347	\$996,092	\$166,403	\$1,162,495	\$36,272	\$81,095	\$52,703	\$1,148,438	\$2,607	\$17,762
Atlantic & St. Lawrence.....Jan.	166	209,054	31,513	240,567	5,683	128,576	8,017	213,274	41,939	27,308
Chic., Detroit & Can. Gr. Tr. Jct.....Jan.	59	224,195	3,904	228,099	3,850	266,265	12,326	148,715	148,715	108,415
Detroit, Gr. Haven & Milwaukee.....Jan.	189	400,638	42,191	442,829	10,632	257,433	15,979	368,398	115,551	14,296
Great Northern.....Jan.	8,250	5,335,782	1,132,492	6,468,274	153,930	3,177,772	237,431	5,657,036	1,500,076	552,038
Green Bay & Western.....Jan.	234	110,838	12,730	123,568	19,133	48,971	2,504	93,657	30,647	24,957
Gulf & Ship Island.....Jan.	307	244,050	40,342	284,392	7,912	203,917	19,214	203,917	80,634	69,607
Gulf, Mobile & Northern.....Jan.	465	447,770	41,585	489,355	19,774	158,938	29,989	389,501	122,133	84,075
Hocking Valley.....Jan.	348	1,189,916	71,888	1,261,804	14,004	443,508	37,676	1,064,542	267,290	283,903
Illinois Central.....Jan.	4,875	9,830,069	2,330,482	12,160,551	223,284	5,062,514	321,477	10,035,212	3,008,948	2,031,781
Yazoo & Mississippi Valley.....Jan.	1,380	1,526,216	313,792	1,840,008	27,281	716,512	47,451	1,371,445	5,631,133	435,200
Illinois Central Combined.....Jan.	6,255	11,356,285	2,644,274	14,000,559	250,565	5,779,426	368,928	11,406,657	3,572,081	2,493,899
Kansas City, Mexico & Orient.....Jan.	272	251,125	7,925	259,050	6,379	92,916	5,409	185,747	80,224	34,259
Kans. City, Mex. & Orient of Tex.....Jan.	465	242,669	15,711	258,380	6,699	95,371	5,590	205,719	62,129	55,129
Kansas City Southern.....Jan.	773	1,200,432	133,455	1,333,887	43,902	498,554	78,687	1,053,800	314,020	298,111
Texasarkana & Ft. Smith.....Jan.	81	218,641	11,172	229,813	4,746	68,230	8,802	146,444	100,758	47,505
Kansas, Oklahoma & Gulf.....Jan.	314	179,716	10,155	189,871	8,362	72,787	10,434	173,632	21,560	11,334
Lake Superior & Ishpeming.....Jan.	161	64,909	6,037	70,946	638	36,794	5,020	95,829	20,218	31,566
Lake Terminal.....Jan.	13	224,559	3,227	227,786	.....	54,506	1,775	86,209	6,638	404
Lehigh & Hudson River.....Jan.	96	224,559	3,227	227,786	1,612	108,185	9,848	191,444	48,977	38,324
Lehigh & New England.....Jan.	219	358,733	2,254	360,987	6,138	137,939	19,111	327,299	40,942	32,462
Lehigh Valley.....Jan.	1,374	4,640,313	575,277	5,215,590	109,148	2,621,939	132,076	4,966,912	785,865	529,293
Louisiana & Arkansas.....Jan.	302	281,879	28,695	310,574	10,333	95,417	11,950	288,375	77,900	37,671
Louisiana Rv. & Nav.....Jan.	337	256,746	18,854	275,600	11,242	146,852	10,203	295,451	8,008	42,947
Louisiana Rv. & Nav. of Tex.....Jan.	206	104,411	8,849	113,260	2,341	49,504	5,381	90,203	31,089	27,089
Louisville & Nashville.....Jan.	5,044	9,164,059	1,979,452	11,143,511	256,995	4,367,278	262,178	9,342,479	2,426,848	1,900,925
Louisville, Henderson & St. Louis.....Jan.	1,999	275,425	55,353	330,778	7,345	110,852	9,709	225,472	123,718	83,998
Maine Central.....Jan.	1,207	1,154,778	319,510	1,474,288	12,722	718,163	54,032	1,356,182	269,011	143,340
Midland Valley.....Jan.	364	304,496	48,715	353,211	5,883	110,752	18,437	208,732	160,256	143,485
Minneapolis & St. Louis.....Jan.	1,637	1,185,400	127,478	1,312,878	29,666	669,419	58,847	1,136,339	245,457	182,049
Minneapolis, St. Paul & S. Maine.....Jan.	4,403	2,692,204	557,252	3,249,456	7,987	1,637,267	113,197	3,014,429	484,215	232,988
Duluth, South Shore & Atlantic.....Jan.	591	333,773	103,928	437,701	7,189	214,039	11,773	386,654	84,718	54,718
Spokane International.....Jan.	165	69,610	12,334	81,944	3,186	35,183	6,558	61,443	25,579	14,787
Mississippi Central.....Jan.	248	124,379	14,093	138,472	7,054	49,268	9,117	100,402	30,319	31,705
Missouri & North Arkansas.....Jan.	364	96,913	17,492	114,405	4,783	55,119	7,165	114,513	1,860,240	829,572
Missouri-Kansas-Texas.....Jan.	1,799	2,236,688	446,619	2,683,307	52,549	835,821	92,012	1,886,240	1,040,618	869,705
Missouri-Kansas-Texas of Texas.....Jan.	1,389	1,402,469	393,110	1,795,579	42,099	837,209	67,927	1,539,821	381,641	136,512
Missouri Pacific.....Jan.	7,356	8,680,295	1,439,018	10,119,313	262,171	4,533,706	322,775	8,735,763	2,235,377	1,815,206
International Great Northern.....Jan.	1,159	1,069,294	186,934	1,256,228	36,494	566,395	51,681	1,133,488	296,371	239,586
Texas & Pacific.....Jan.	1,952	2,026,811	568,866	2,595,677	63,318	1,106,200	92,583	2,239,849	560,669	282,952
Mobile and Ohio.....Jan.	1,161	1,297,052	153,421	1,450,473	45,530	566,326	45,744	1,177,732	363,483	275,727
Monongahela.....Jan.	129	472,434	27,610	500,044	1,160	145,057	11,004	283,695	220,408	132,403
Monongahela Connecting.....Jan.	7	.....	.....	.....	375	123,987	4,076	197,253	28,999	24,009
Montour.....Jan.	57	124,427	871	125,298	960	36,430	7,198	110,448	15,881	8,825
Nashville, Chattanooga & St. Louis.....Jan.	1,259	1,320,913	432,464	1,753,377	82,495	738,492	72,834	1,623,694	306,063	245,062
Nevada Northern.....Jan.	165	67,046	8,710	75,756	832	18,674	4,901	52,040	30,146	19,670
Newburgh & South Shore.....Jan.	7	.....	.....	.....	.....	83,272	7,094	138,590	79,300	36,026
New Orleans Great Northern.....Jan.	274	208,594	25,034	233,628	5,704	75,501	10,694	165,918	77,786	57,736
New York Central.....Jan.	6,889	18,182,639	7,934,950	26,137,589	371,358	11,899,495	884,544	23,953,464	5,670,190	3,716,368
Cincinnati Northern.....Jan.	244	391,409	10,328	401,737	6,368	134,237	9,390	264,657	142,831	116,998
Cleveland, Cincinnati, Chic. & St. L.....Jan.	2,398	5,834,232	1,391,979	7,226,211	125,826	3,010,008	203,230	5,726,564	2,110,769	1,648,362
Indiana Harbor Belt.....Jan.	116	.....	.....	.....	6,155	466,773	22,043	695,759	256,812	225,608
Michigan Central.....Jan.	1,862	4,613,682	1,748,547	6,362,229	103,265	2,647,000	139,094	5,026,135	1,959,770	1,519,187
Pittsburgh & Lake Erie.....Jan.	231	2,600,910	251,055	2,851,965	27,118	985,161	73,223	2,316,189	78,400	638,376
New York, Chicago & St. Louis.....Jan.	1,695	4,318,730	138,418	4,457,148	122,681	1,733,591	171,814	3,447,157	1,163,378	913,602
New York, New Haven & Hartford.....Jan.	1,957	4,901,938	1,115,117	6,017,055	67,413	4,077,242	304,311	7,918,905	2,213,550	1,719,833
Central New England.....Jan.	292	562,840	11,556	574,396	5,687	232,489	14,976	460,817	135,127	109,615
New York Connecting.....Jan.	20	206,997	.....	206,997	.....	63,614	1,141	73,730	192,935	153,435
New York, Ontario & Western.....Jan.	569	652,432	96,310	748,742	16,735	497,628	39,174	910,653	3,961	115,307
Norfolk & Western.....Jan.	2,240	7,226,293	706,768	7,933,061	95,454	2,921,939	180,420	5,709,813	2,557,293	1,956,888
Norfolk Southern.....Jan.	931	492,068	97,811	589,879	23,074	293,389	27,950	518,953	114,630	69,465
Northwestern Pacific.....Jan.	6,694	5,346,885	1,023,118	6,370,003	162,463	3,051,201	251,364	5,816,953	1,190,108	760,086
Northwestern Pacific.....Jan.	480	284,504	146,213	430,717	4,522	219,471	17,604	402,951	76,484	29,473

Began operations January 1, 1925—formerly the Carolina, Cincinnati &amp; Ohio.

## REVENUES AND EXPENSES OF RAILWAYS

MONTH OF JANUARY OF CALENDAR YEAR 1925—CONTINUED

Name of road	Average mileage operated during period	Operating revenues			Maintenance of way and structures			Operating expenses			Operating ratio	Net from railway operation	Operating income (or loss)	Net after rents	Net after income taxes, 1924
		Freight	Passenger	Total	Way and structures	Equip-ment	General	Traffic	Transportation	Total					
Pennsylvania	10,479	\$35,942,824	\$12,406,021	\$48,348,845	\$6,640,414	\$14,138,028	\$1,499,824	\$633,504	\$21,445,381	\$45,181,265	84.70	\$8,137,010	\$6,185,458	\$4,916,404	\$5,297,636
Baltimore, Chesapeake & Atlantic	130	46,013	23,153	69,166	7,504	8,768	3,248	1,493	76,889	118,431	157.40	43,197	45,968	—	—
Long Island	397	684,753	1,542,749	2,227,502	394,092	2,428,074	66,085	21,799	1,279,456	2,267,641	93.40	160,398	112,583	71,141	101,659
West Jersey & Seashore	360	341,629	412,815	754,444	172,838	808,225	24,409	11,577	462,411	341,741	104.20	61,319	61,199	—	—
Peoria & Pekin Union	19	32,241	4,043	36,284	13,233	21,677	8,163	554	95,844	139,471	69.50	61,319	45,319	60,343	55,022
Pere Marquette	2,265	2,588,352	391,690	2,979,042	243,770	727,985	105,773	57,042	1,333,008	2,476,173	77.20	731,953	605,601	549,708	226,775
Pittsburgh & Shawmut	102	99,649	6,051	105,700	12,365	35,600	6,888	1,271	36,025	93,349	86.90	14,012	13,856	23,110	11,990
Pittsburgh & West Virginia	92	340,461	7,475	347,936	28,799	96,984	17,760	5,944	241,515	80,644	63.40	135,504	95,210	164,470	107,175
Pittsburgh, Shawmut & Northern	210	144,262	4,682	148,944	152,000	32,720	5,270	1,744	63,073	122,046	80.30	29,954	27,302	26,321	31,953
Quincy, Omaha & Kansas City	250	46,530	18,179	64,709	19,545	17,130	2,494	915	43,286	82,833	113.50	9,839	14,471	17,393	—2,346
Reading Company	1,137	6,332,605	953,997	7,286,602	773,456	1,718,147	173,940	61,916	3,106,971	5,865,315	76.60	1,794,300	1,420,658	1,485,082	1,110,826
Atlantic City	169	114,517	117,911	232,428	123,583	66,771	4,574	3,560	182,412	380,983	154.40	134,279	156,975	187,169	140,220
Perkinston	41	105,443	7,300	112,743	8,397	5,470	806	107	47,436	62,263	53.40	54,343	49,176	44,083	38,223
Port Reading	21	178,499	229,583	408,082	14,033	5,849	1,404	229	86,282	107,797	47.00	121,786	106,424	11,103	—8,608
Richmond, Fredericksburg & Potomac	117	409,674	430,475	840,149	1,027,122	163,919	35,257	9,349	339,704	649,687	63.30	377,435	315,851	259,888	230,416
Rutland	413	275,313	106,399	381,712	91,636	118,580	14,557	9,022	240,749	476,294	98.20	8,644	13,011	7,658	34,111
St. Louis-San Francisco	4,902	5,323,418	1,488,205	6,811,623	774,709	1,320,825	227,606	100,592	2,641,967	5,054,479	69.40	2,225,695	1,823,800	1,756,819	1,555,564
St. Worth & Rio Grande	233	106,165	20,816	126,981	20,431	26,344	4,808	3,115	60,074	114,735	82.70	23,945	19,923	8,190	18,756
St. Louis, San Francisco & Texas	137	212,650	16,513	229,163	23,682	29,467	7,652	5,112	69,169	135,101	57.50	100,632	97,377	69,003	16,478
St. Louis Southwestern	969	1,373,540	143,635	1,517,175	1,602,195	213,659	65,830	52,933	410,235	1,092,633	68.20	509,762	433,336	340,531	407,496
St. Louis Southwestern of Texas	807	564,697	81,531	646,228	138,305	194,512	30,873	24,485	269,960	659,638	94.80	36,211	9,269	52,054	—11,110
San Antonio & Aransas Pass	739	411,406	57,284	468,690	141,241	155,901	21,175	11,764	212,764	545,089	107.60	38,436	55,292	69,507	—17,135
San Antonio, Uvalde & Gulf	318	92,122	19,670	111,792	17,092	16,636	6,033	5,503	53,252	98,516	81.00	23,113	19,260	7,111	4,830
Seaboard Air Line	3,669	3,110,880	1,220,913	4,331,793	662,114	904,339	168,491	1,931,210	3,915,340	8,915,340	81.60	884,485	663,374	544,125	682,301
Southern	6,868	7,945,261	2,775,645	10,720,906	1,606,935	2,259,271	317,425	232,138	4,295,361	8,796,930	75.50	2,856,413	2,294,941	2,080,146	1,751,532
Alabama Great Southern	318	582,458	162,905	745,363	115,905	179,488	26,606	20,124	267,870	614,859	77.80	175,740	124,202	142,412	139,850
Cincinnati, New Orleans & Tex. Pac.	318	1,327,973	47,405	1,375,378	208,971	366,911	50,921	4,052	590,444	1,240,359	66.10	635,495	51,456	37,077	495,261
Georgia, Southern & Florida	318	359,031	149,968	508,999	69,935	51,974	10,470	9,563	171,810	320,137	64.40	175,321	150,843	103,747	45,087
New Orleans & Northeastern	207	348,353	81,321	429,674	61,901	89,843	16,067	10,986	147,186	253,266	70.40	136,128	97,348	70,920	89,070
Northern Alabama	110	103,511	11,120	114,631	26,755	4,743	2,726	39,047	75,639	75,639	64.60	41,453	37,328	12,293	47,027
Southern Pacific	8,722	10,197,539	3,351,869	13,549,408	2,250,130	2,978,989	584,723	5,800,331	12,144,797	28,264,889	81.10	2,826,889	1,603,532	1,635,436	1,738,618
Atlantic Steamship Lines	35	35,917	70,986	106,903	3,227	148,000	28,648	850,953	1,063,169	1,363,169	133.40	267,182	282,313	286,381	17,336
Galveston, Harrisburg & San Antonio	1,379	1,266,457	414,451	1,680,908	1,832,141	317,004	85,927	666,358	85,927	1,963,529	81.70	355,612	262,696	181,002	100,418
Houston & Texas Central	929	1,266,333	294,312	1,560,645	202,514	259,368	41,868	510,146	1,042,475	1,452,621	63.20	606,713	535,828	452,423	15,573
Houston East & West Texas	131	190,656	58,622	249,278	52,182	58,308	8,739	3,374	76,554	118,554	77.20	26,204	16,668	4,023	—39,012
Louisiana Western	207	236,104	79,702	315,806	34,557	69,159	17,535	12,377	107,686	265,253	99.10	78,604	46,877	31,799	90,917
Morgan's L. & Tex. R.R. & S.S. Co.	400	534,050	127,228	661,278	714,974	109,657	34,794	305,083	662,982	967,965	92.70	51,992	1,743	—45,995	—63,376
Texas & New Orleans	507	630,183	161,009	791,192	138,637	232,866	23,887	319,111	734,475	953,582	87.90	101,276	68,880	66,856	—138,029
Spokane, Portland & Seattle	584	394,910	101,679	496,589	58,186	110,710	21,336	195,484	403,389	518,563	70.80	166,044	92,528	57,291	99,659
Tennessee Central	296	187,077	39,398	226,475	241,245	51,388	10,843	100,915	218,827	269,742	90.70	22,418	16,164	—5,849	11,645
Term. Railroad Assn. of St. Louis	37	.....	.....	.....	470,918	37,231	8,486	194,335	291,058	291,058	61.80	179,860	119,934	222,192	124,358
East St. Louis Connecting	1	.....	.....	.....	16,357	10,309	2,388	88,730	118,087	118,087	48.70	124,350	119,633	97,625	66,155
St. L. Merchants' Bridge Term.	9	.....	.....	.....	465,974	22,942	6,507	313,515	76,480	390,000	70.80	152,459	129,184	131,401	74,194
St. Louis Transfer	6	.....	.....	.....	98,307	7,124	1,166	62,555	76,480	76,480	77.80	21,827	21,433	15,030	4,228
Toledo, Peoria & Western	247	119,973	27,555	147,528	23,379	41,648	7,022	159,375	159,375	159,375	100.70	—1,128	—7,129	—17,995	—19,994
Trinity & Brazos Valley	368	513,381	15,212	528,593	44,243	45,978	12,021	309,802	309,802	309,802	57.10	232,963	224,900	153,538	—83,873
Ulster & Delaware	128	30,388	11,337	41,725	12,804	19,760	7,161	48,424	89,855	138,279	121.60	—15,959	—21,459	—22,484	—19,173
Union Railroad of Pennsylvania	45	.....	.....	.....	907,879	369,538	1,061	454,002	907,879	907,879	99.70	3,020	—7,980	17,265	131,076
Union Pacific	3,687	5,547,581	1,276,121	6,823,702	669,195	1,736,205	283,612	137,149	2,451,640	5,422,389	72.10	2,101,219	1,414,753	1,454,806	1,446,599
Oregon Short Line	2,414	2,187,375	384,807	2,572,182	273,804	529,992	110,986	916,126	1,925,114	2,841,240	69.70	835,053	589,239	568,184	446,204
Oregon Wash. R.R. & Nav. Co.	2,236	1,549,363	362,918	1,912,281	303,365	380,302	115,128	922,484	1,809,794	2,732,278	86.10	290,962	120,941	54,821	261,364
Los Angeles & Salt Lake	1,207	1,543,375	364,053	1,907,428	322,076	386,544	61,246	686,811	1,578,601	2,265,417	80.00	393,526	255,256	201,701	90,692
St. Joseph & Grand Island	258	248,898	23,003	271,901	286,214	42,702	15,562	111,587	204,881	216,469	71.60	81,333	64,764	52,455	24,076
Utah	102	219,326	704	220,030	24,431	47,631	5,967	52,737	131,189	183,826	59.30	89,998	81,862	65,242	44,454
Virginian	545	1,652,534	64,966	1,717,500	205,468	336,688	35,643	433,252	1,022,940	1,456,192	55.70	812,867	685,712	712,689	405,978
Wabash	2,524	4,339,985	706,163	5,046,148	629,312	1,086,289	2,406,029	4,309,105	7,970,105	10,379,210	79.70	1,097,156	864,112	591,246	327,542
Western Maryland	804	1,553,343	61,495	1,614,838	206,706	369,261	45,643	37,734	520,498	1,192,292	71.20	483,018	423,018	387,417	324,348
Western Pacific	1,042	865,200	102,494	967,694	136,306	210,190	36,663	433,765	860,927	1,294,692	83.90	165,111	87,153	194,162	113,812
Wheeling & Lake Erie	511	1,249,549	55,681	1,305,230	119,704	410,073	43,769	523,859	1,128,191	1,552,050	81.10	263,527	158,560	149,025	204,723

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### The Freight Container Bureau

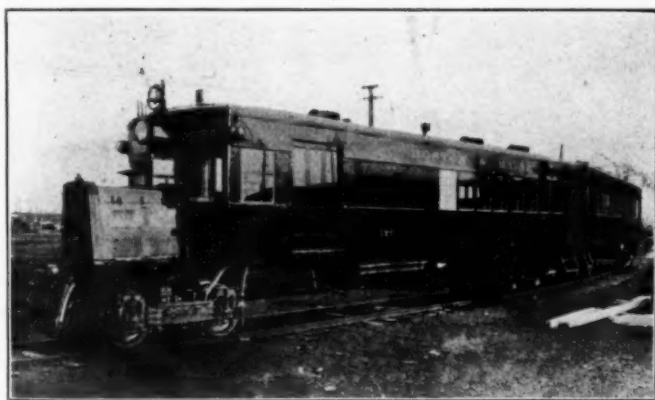
Edward Dahill, Jr., has been appointed chief engineer of this bureau, the new joint A. R. A. committee having decided that Colonel B. W. Dunn, chief inspector of the Bureau of Explosives, should devote his whole time to the explosives bureau. Colonel Dunn has had charge of the container bureau since its establishment. Headquarters, 30 Vesey street, New York City.

R. H. Aishton, president of the American Railway Association, announcing this appointment, gives the names of the new committee (authorized at the November meeting) which is to supervise the Freight Container Bureau, of which committee F. W. Smith, 143 Liberty street, New York, is chairman. These names are:

**Transportation Division**  
 F. W. B. HUMES, Pennsylvania.  
 A. C. KENLY, Atlantic Coast Line.  
 A. S. DODGE, Western Weighing & Inspection Bureau.  
**Traffic Division**  
 J. L. EYSMANS, Pennsylvania.  
 J. F. HOLDEN, Kansas City Southern.  
 JAMES MENZIES, Atlantic Coast Line.  
**Freight Claim Division**  
 T. C. SMITH, Central of New Jersey.  
 H. T. LIVELY, Louisville & Nashville.  
 C. H. DIETRICH, Chicago, Milwaukee & St. Paul.  
**Classification Committee**  
 F. W. SMITH, Official Classification Committee.  
 E. H. DULANEY, Southern Classification Committee.  
 R. C. FYFE, Western Classification Committee.  
**Canada**  
 G. C. RANSOM, Canadian Freight Association.

### Motor Car for the Boston & Maine

A new motor car and trailer, built by the Sykes Company, St. Louis, and the St. Louis Car Company, St. Louis, Mo., has recently been delivered to the Boston & Maine. It is planned to place this train in operation between North Adams, Mass., and Troy, N. Y., about March 15. The motor car is 51 ft. over all, comprising a 16-ft. baggage compartment and accommodations for



Gasoline Motor-Driven Train Built for the Boston & Maine for Main-Line Passenger Service by the Sykes Company, Chicago, and the St. Louis Car Company, St. Louis, Mo.

30 passengers. It is equipped with a Sterling, six-cylinder heavy duty gasoline engine developing 225 hp. The trailer is of the vestibule type and is 45 ft. 6 in. over all and has a seating capacity of 52 persons, making a total of 82 passengers for the train. This is the third motor car unit to be placed in operation on the Boston & Maine.

### Chicago Fraud in Personal Injury Case

Charges that a Chicago attorney had been instrumental in the filing of a number of fraudulent personal injury suits against railways were made by the Chicago, Burlington & Quincy in district court at Chicago on February 13, during the hearing of a suit for \$40,000 against the Burlington brought by one of its employees who had participated in a trap set for the attorney. In accordance with the plans made by the legal department of the Burlington, their investigator, in the guise of a yard employee, intentionally fell from a freight car and pretended that the fall had brought on paralysis. In court, he testified that a runner for an attorney induced him to bring suit against the railroad and introduced the attorney who agreed to handle the case while

aware that the man was not suffering from any injury. The witness also testified that he had been examined by five physicians, four of whom pronounced the case paralysis of the right arm and leg. The fifth physician, who is attached to the Burlington medical staff but who was not aware of the true character of the case, employed an electrical test which the other four doctors did not use, proving thereby that the man was not injured. The facts of the case were disclosed by the Burlington counsel during the hearing of the fraudulent claim for personal injury when, at a signal, the investigator, who had been posing as paralyzed, threw away his cane and walked around the room without difficulty. At the request of the court an investigation of the case and others similar to it is being made by the states attorney's office of Cook county.

### The Hump Crew Rivals

The switching crews in the freight yard of the Pennsylvania Railroad at West Morrisville, Pa. (near Trenton, N. J.) have issued a statement to the effect that in four months, ending with January, they moved over the humps 135,209 cars and damaged the draft gear in only 25 of them. This statement is issued in response to an informal "challenge" issued by the hump crews at Pitcairn, last month, as noticed in the *Railway Age* of February 21, page 434, intimating that the record of the Pitcairn yard for safety would be hard to beat. The West Morrisville statement now gives the percentages of cars damaged at different yards, as recently noticed in the Pennsylvania News, as follows:

West Morrisville .....	.000185
Harrisburg .....	.000248
Harrisburg and Enola combined.....	.000268
Pitcairn .....	.000272
Enola .....	.000289

The statement that was sent out by Pitcairn showed a total of 297,373 cars handled by six crews in 103 days; a much larger number of cars, it will be noticed, than was handled at West Morrisville and in a shorter period of time. These comparisons do not disturb the claims of the westbound hump crew at Pitcairn, who showed a record of four months without any damage to a single car.

### Safety Certificates on the A. C. L.

The Atlantic Coast Line reports that for the six months ending with December 31, last, nine roadmasters and 604 foremen in the Maintenance of Way department received from the Department of Safety, "100 per cent certificates" for having had no personal injuries to report.

The blank on which the roadmasters' certificates are written,

SAFETY	ATLANTIC COAST LINE RAILROAD COMPANY		SAFETY
	DEPARTMENT OF SAFETY		
Maintenance of Way Employees Accident Prevention Contest.			
This is to Certify that the employees in territory under supervision of _____ Roadmaster, have attained			
100% in SAFETY, during period _____			
SAFETY	CHIEF ENGINEER	CHIEF GENERAL SAFETY COMMITTEE	SAFETY

which is 10 in. wide, is shown herewith in a reduced facsimile. The certificate for section masters, made on a card resembling an annual pass, says that it is awarded to Mr. \_\_\_\_\_ "for conscientious recognition of his personal responsibility for the safety of his men," and bears in bold type "NO EMPLOYEES INJURED."

As announced early last year, all maintenance of way foremen entered into an accident prevention contest on July 1, all deter-

mined to pass through the entire period without injury to themselves or men; and, out of 665 foremen, 604, or 91 per cent, did not have a man injured to the extent that he lost more than three days from work. The number of injuries was 34 per cent less than in the corresponding half of 1923, although the roadway forces had been increased 13 per cent. The number of men injured, per 100 on duty, was also decreased from 4.1 in 1923 to 2.4 in 1924.

Of the 41 roadmasters, supervising the work in territories occupied by the 665 foremen, nine, or 22 per cent, had no injuries reported from their districts. To each of these roadmasters, as well as to each sectionmaster, certificates have been presented.

The percentage of reductions in personal injuries, shown in this record, was greater in the roadway department than in the other departments (combined).

### The Makers of the B. & O. Magazine

The correspondents of the Baltimore & Ohio Magazine, to the number of 125, gathered at the general office building of the road in Baltimore, on Friday, February 20, for their annual conference. President Daniel Willard made an address of welcome, speaking especially of the co-operative plan now functioning in the several divisions of the operating department, and presenting briefly the financial plans and problems of the railroad for the next few years.

Otto S. Beyer, who has had intimate contact with the employees of the motive power department, during the last two years, as

and by Whiting Williams, who has made an intensive study of the life of the working man in the mines, furnaces and workshops of the United States, the British Isles and Continental Europe.

On both days papers were presented and talks made by individual correspondents on special phases of their work. The meeting closed with a luncheon on Saturday noon and later there was a theatre party.

The Baltimore & Ohio Magazine began these business conferences in October, 1923.

### New Trains Between the East and St. Louis

The Baltimore & Ohio announced last week that, beginning on April 26, a new through train, all sleeping cars, is to be run between Washington and St. Louis, to be called the National Limited. The train will be similar to the Capitol Limited, the 20-hour train run by this road between Baltimore and Chicago by way of Washington. The Baltimore & Ohio is the shortest line between Baltimore and St. Louis and it is proposed to provide the quickest schedule between the two cities. The new train will have through sleeping cars to and from New York City.

A few days later the Pennsylvania announced that, beginning on the same day, a new 24-hour limited service would be put on between New York and St. Louis, the new trains, both eastbound and westbound, to be called "The American." The westbound train will leave New York at 6:05 p. m., and the eastbound will leave St. Louis at 8:58 a. m., each train running through in about 24 hours. This service will be an addition to the two 25-hour



Editors and Correspondents of the Baltimore & Ohio Magazine

representative of the International Association of Machinists, told of his activities in helping the company work out the co-operative plan. He was confident that never before in the history of the railroad had the employees been so contented with their working conditions and he claimed that this plan, with the all-around better work and the stabilization of employment which it has already developed, marked the greatest single advance ever made in the relationship between management and men.

Mr. Beyer was followed by R. M. Van Sant, editor of the magazine. Lunch was served in the railroad company's general office restaurant, and in the afternoon the visitors took a special train for an inspection trip around the Baltimore terminal, including visits to the \$5,000,000 pier and grain elevator improvement at Locust Point and the coal pier at Curtis Bay.

On Friday evening a banquet was given at the Hotel Rennert, with speeches by H. Irving Martin, of the relief department; E. V. Baugh, superintendent of dining cars; George H. Pryor, auditor of disbursements; F. X. Milholland, assistant to senior vice-president; W. E. Lowes, general passenger agent; W. W. Blakeley, assistant to general freight traffic manager; W. J. McGee, president of the Baltimore & Ohio System Federation Number 30. There was community singing followed by showing of the railroad's newest motion picture "The Rolling Romance."

Another session was held on Saturday morning with addresses by Vice-Presidents George M. Shriver and Charles W. Galloway,

trains now in service on this road between New York and St. Louis.

Following these two announcements the New York Central Lines gave notice that on the same day a new fast train would be put on from St. Louis to New York and Boston, to be called the Southwestern Limited. It is proposed to run this train through between St. Louis and New York in 24 hours, 50 minutes, leaving St. Louis at 9 a. m. and arriving in New York at 10:50 a. m. Westbound, the Southwestern Limited, now leaving New York at 4:30 p. m., will leave at 4:46 and will arrive at St. Louis at 5 p. m.; forty-five minutes earlier than at present.

### Decision Regarding Ingoldsby Patents

The U. S. District Court for the Northern District of Illinois recently rendered decision in the case of the Pressed Steel Car Company, complainant-cross-defendant, versus Enterprise Railway Equipment Company, defendant-cross-complainant, Equity No. 2657.

The court dismissed for want of equity the Pressed Steel Car Company's complaint predicated upon alleged infringement of claims 1, 3, 4, 5 and 6 of Allen letters patent 929,268, also that portion of the Enterprise Railway Equipment Company's counter-claim as predicated upon alleged infringement of claims 78, 109 and 130 of Ingoldsby patent 1,046,191; claim 22 of Ingoldsby patent 1,048,312 and claims 9 and 17 of Ingoldsby and Bowling patent 1,027,851.



As to the Enterprise Railway Equipment Company's complaint predicated upon alleged infringement of claims 86 and 148 of Ingoldsby letters patent 1,046,191, the court held that Frank S. Ingoldsby was the first, sole, true and original inventor of the inventions and improvements described and particularly recited in claims 86 and 148 of letters patent 1,046,191, and that said patent is good and valid in law as to the said claims; also that the Pressed Steel Car Company has infringed these claims and upon the exclusive rights of the Enterprise Railway Equipment Company under them. The court ordered that a perpetual injunction should be issued enjoining and restraining the Pressed Steel Car Company, its officers and agents, etc., from directly or indirectly making or causing to be made, using or causing to be used, or vending to others to be used, any articles, devices, apparatus or dump cars embodying or employing inventions and improvements described and claimed in claims 86 and 148 of said letters patent 1,046,191.

Claims 86 relates to cross tying construction commonly used in hopper cars.

Claim 148 relates to the use of bulb angles along the top edges of open top gondola and hopper cars.

### Canadian Railroad Veterans

The illustration printed herewith shows the faces of 27 old-timers of the railway world, in Canada, who were gathered at a banquet given last month in Vancouver, B. C., by Division No. 320 of the Brotherhood of Locomotive Engineers, the guests being railroad men of Canada, both east and west, who have been long in the service. The years noted in the list below are those in which the individual entered railway service. All of the men to whose names titles are attached served on the Canadian Pacific.

First honors are given to Sam G. McIntosh, a member of the B. L. E., who entered the service on the Grand Trunk in 1866.

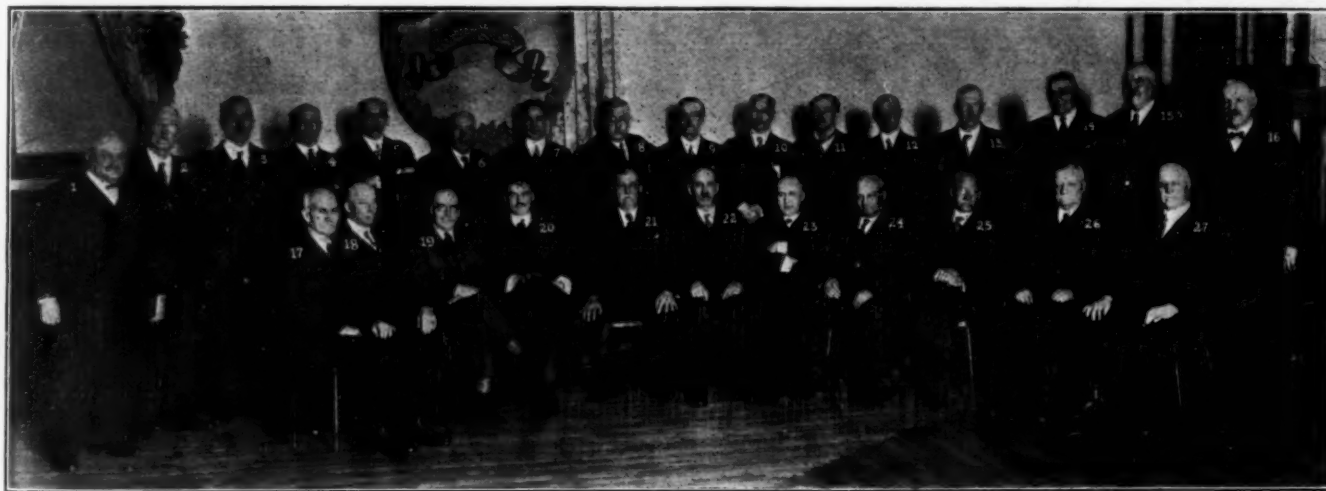
### Annual Report of Canadian Railway Board

During the year 1924 the Dominion Railway Board held 55 public sittings at which 235 applications were heard, according to the annual report tabled in the House of Commons at Ottawa this week by George P. Graham, Minister of Railways and Canals. Of those 55 sittings 27 were held in Ontario, and the remainder distributed among the other eight provinces. Of a total of 3,314 applications and complaints received and dealt with by the board 93 per cent were disposed of without the necessity of formal sitting.

Under the provisions of section 262 of the Railway Act whereby \$200,000 is set aside each year from the consolidated revenue fund of Canada in providing protective work at railway crossings in the Dominion 593 orders have been issued by the Dominion Railway Board from April 1, 1909, up to the end of 1924, these orders providing protection for 654 crossings, of which 270 were electric bells, 120 were gates, 58 were subways, 73 were electric bell and wigwag and 54 diversion highways.

In the traffic department of the board in 1924 the number of tariffs received and filed were: freight tariffs, including supplements, 61,071; passenger tariffs, including supplements, 9,240; express tariffs, including supplements, 984; telephone tariffs, including supplements, 884; sleeping and parlor car tariffs, including supplements, 240; telegraph tariffs and supplements, 25. The total number of schedules filed from February 1, 1904, to the end of last year was 1,273,889.

From the report of the board's chief operating officer it is shown that there were 2,834 accidents in 1924, resulting in 318 persons being killed and 3,254 injured, as compared with 3,187 accidents in the previous year, causing 295 deaths and 3,597 persons being injured. For the year 1924 there were 17 passengers killed, as compared with 15 in the previous year, and 558 passengers injured in 1924, as compared with 385. There were 107 employees killed in 1924, as compared with 122, and 2,398 employees injured, as



Canadian Railroad Veterans at a B. L. E. Banquet in Vancouver, B. C.

J. B. Barreau, a retired conductor, has a record only one year shorter. Mr. Barreau began on a work train of the Intercolonial. Reading from left to right the names are:

- |                                   |                                    |
|-----------------------------------|------------------------------------|
| 1. J. H. Caslake, 1882            | 15. H. B. Gilmore, 1883            |
| 2. J. McLeod, 1882                | 16. W. H. Elson, 1884              |
| 3. A. P. Proctor, medical service | 17. A. Dow, 1876                   |
| 4. J. B. Burton, 1872             | 18. J. B. Barreau, 1867            |
| 5. P. D. Hunt, 1882               | 19. Charles Murphy, manager West-  |
| 6. L. Patrick, 1878               | ern lines                          |
| 7. W. J. Rennix, master mechanic  | 20. Grant Hall, vice president and |
| 8. W. F. Peters, general superin- | general manager, 1883              |
| tendent                           | 21. C. H. Temple, chief of motive  |
| 9. C. S. Maharg, superintendent,  | power, 1881                        |
| 1885                              | 22. Duke McKenzie, 1876            |
| 10. C. A. Cottrell, asst. general | 23. J. J. Scully, manager, Eastern |
| supt., 1892                       | lines                              |
| 11. H. Creelman, 1877             | 24. T. Penhale, 1881               |
| 12. A. A. McLeod, 1882            | 25. S. G. McIntosh, 1866           |
| 13. W. H. Evans, division master  | 26. J. Doig, 1885                  |
| mechanic, 1881                    | 27. Charles Brown, 1872            |
| 14. G. W. Clark, 1872             |                                    |

Messrs. McIntosh, Brown and Patrick are wearers of the gold badge of the B. L. E., indicating that they have belonged to that organization forty years. Mr. Doig was conductor of the first train that was run into Vancouver.

compared with 2,542. The number of others killed in 1924 was 194, as compared with 158, while the number of others injured in 1924 was 471, as compared with 497. It is pointed out that of the 194 of others killed last year 43 per cent were trespassers, and of the 471 others injured 23 per cent were trespassers. Of the total of 1,051 accidents last year crossings protected by gates accounted for 26 killed and 72 injured, crossings protected by bell accounted for 48 killed and 162 injured, crossings protected by watchmen accounted for 7 killed and 38 injured, and crossings unprotected accounted for 281 killed and 1,007 injured. During the year there were 240 accidents at highway crossings, reported to the board, covering 94 persons killed and 287 injured, as compared with 244 accidents in 1923, covering 64 persons killed and 326 injured. Of these in 1924 automobile accidents totaled 168, horse and rig accidents 37 and pedestrian accidents 42.

In the fire season of 1924 a grand total of 1,173 fires from all causes were reported as having originated within 300 feet of railway lines in forested territory along railways subject to the board's jurisdiction, which now covers about 97 per cent of the railway mileage of Canada. Of the grand total 499 fires burned over less

than one-fourth acre each, doing no damage, while 674 larger fires are reported to have burned over 33,942 acres and destroyed forest growth, forest products and other property valued at \$168,941. Of the grand total over 82 per cent were attributed to railway agencies.

### Locomotive Shipments in February

The Department of Commerce has prepared the following table of locomotive shipments in February based on reports from principal manufacturers:

Year and month	LOCOMOTIVES			Unfilled orders end of month		
	Total	Domestic	Foreign	Total	Domestic	Foreign
<b>1923</b>						
January.....	229	217	12	1,788	1,699	89
February.....	207	196	11	2,220	2,141	79
March.....	282	269	13	2,316	2,214	102
April.....	217	201	16	2,204	2,111	93
May.....	238	228	10	2,150	2,045	105
June.....	232	221	11	1,958	1,854	104
July.....	239	211	28	1,738	1,652	86
August.....	272	259	13	1,497	1,406	91
September.....	335	313	22	1,178	1,102	76
October.....	310	295	15	977	915	62
November.....	299	270	29	691	656	35
December.....	329	305	24	387	365	22
Total.....	3,189	2,985	204	....	....	....
<b>1924</b>						
January.....	151	147	4	376	344	32
February.....	99	92	7	499	466	33
March.....	132	128	4	534	494	40
April.....	73	63	10	640	586	54
May.....	111	93	18	643	589	54
June.....	145	134	11	531	462	69
July.....	140	130	10	483	416	67
August.....	139	121	18	361	306	55
September.....	104	79	25	386	333	53
October.....	96	78	18	462	398	64
November.....	133	123	10	397	331	66
December.....	142	132	10	431	358	73
Total.....	1,465	1,320	145	....	....	....
<b>1925</b>						
January.....	90	45	45	407	351	56
February.....	85	73	12	397	343	54

### Normal-Stop Train-Order Signals

#### in California Forty Years Ago

Miss Kate Potwin, agent of the Southern Pacific at Oakland, Cal. (Sixteenth street station), who was retired on pension at the beginning of 1925, after 42 years 6 months in the company's service, is credited with having been the first person on the Southern Pacific to use train-order signals standing normally against trains, to be cleared only when a train was to be allowed to proceed.



Sixteenth Street Station, Oakland, California

Miss Kate Potwin, agent, recently retired

Sixteenth street station, which is two miles east of the terminus of the overland line at Oakland Pier, is manned by 35 employees, men and women, and Miss Potwin had been in charge of the station for six years. Twenty or more through trains each way stop at that station daily.

Miss Potwin began as a telegrapher and served at various points on the Western division until October, 1893, when she was appointed ticket agent at Oakland Pier. She stayed there over 25 years and was then appointed to the place from which she has just retired. She served at one time as night operator at Hum-

boldt, Nev. About 1885, she was appointed day operator at Port Costa, Cal., a busy station where the two preceding operators, men, had been unsatisfactory, one or both of them having failed to hold a train that should have been held. The first act of Miss Potwin was to put out red flags both ways. These flags had been placed but a few minutes when the agent, her superior, came in to find out the cause for such an unusual proceeding.

"Did you know you've got the flags out?" he asked. "There are no orders on hand, are there?"

"I know it," said Miss Potwin, "but no trains are going to get by me! When one comes along and there is no stop order, I'll just take down the flag and let them go on."

From an article in the Southern Pacific Bulletin, from which the foregoing facts are taken, it appears that Miss Potwin's versatility has been manifested in many ways. On one occasion she served as conductor on a train out of Martinez.

### Railway Revenues for January

Gross operating revenues of the Class I railroads amounted in January to \$484,773,600, according to reports for the month compiled by the Bureau of Railway Economics from returns filed by the carriers with the Interstate Commerce Commission. This was an increase of \$15,787,400 or 3.4 per cent over the revenues of the same month last year. Operating expenses totaled \$383,734,800, a reduction of \$1,357,200 or four-tenths of one per cent as compared with January, 1924, and the net operating income was \$65,842,000, as compared with \$51,387,200 in January last year, an increase of \$14,454,800.

The earnings by districts for January, with the percentage of return based on property investment, on an annual basis were as follows:

	Per cent
New England Region.....	4.69
Great Lakes Region.....	4.74
Central Eastern Region.....	4.71
Poconos Region.....	7.35
Total Eastern District.....	5.01
Total Southern District.....	5.38
Northwestern Region.....	2.75
Central Western Region.....	4.70
Southwestern Region.....	4.65
Total Western District.....	4.13
United States.....	4.71

Twenty-seven Class I carriers operated at a loss in January, of which 11 were in the Eastern district, three in the Southern and 13 in the Western district. In December 33 roads had operating deficits.

Maintenance expenditures in January totaled \$165,324,100, as compared with \$165,655,200 in January, 1924. Maintenance of way expenditures totaled \$56,971,378, an increase of \$1,638,547. Expenditures for maintenance of equipment amounted to \$108,352,700, a decrease of \$1,969,660.

Carriers in the Eastern district had a net operating income in January of \$30,949,650, as compared with \$24,509,300 in January last year. Freight traffic in the Eastern district in January, according to incomplete returns, was about five per cent over that of the corresponding period last year. Gross operating revenues of the Eastern carriers totaled \$239,812,400, an increase of 2.5 per cent over January the year before. Operating expenses totaled \$193,488,300, a decrease of one-half of one per cent.

Class I carriers in the Southern district in January had a net operating income of \$11,451,600, as compared with \$10,127,780 in January last year. Freight traffic on the Southern roads in January was about three per cent above that of the same month last year. Gross operating revenues of the Southern carriers in January totaled \$67,909,850, an increase of 3.5 per cent, while operating expenses totaled \$51,856,000 virtually the same as in January, 1924.

Carriers in the Western district had a net operating income in January of \$23,440,700, as compared with \$16,750,130 for the same month last year. Freight traffic in the Western district showed an increase of approximately ten per cent. Gross operating revenues of the Western carriers totaled \$177,051,325, an increase of 4.5 per cent over January last year while operating expenses totaled \$138,390,430, a decrease of four-tenths of one per cent.

A BILL has been introduced into the state Senate of South Dakota which provides that all railway lines constructed in South Dakota within the next 10 years shall be exempt from taxes for a period of 10 years after their construction.



## Traffic News

The Denver & Rio Grande Western has applied to the Colorado Railroad Commission for permission to take up the third rail between Salida, Colo., and Leadville preparatory to improving the road-bed and inaugurating faster schedules on the main line. Freight will be transferred from the narrow gage line at Salida.

At a conference held in Halifax between Premier E. H. Armstrong, General Manager C. W. Muir, of the Canadian National Express Company, Arthur Boutelier, president of the National Fish Company, and other interested parties it was decided to reduce by 25 per cent the express rates on fresh fish shipments between Halifax and Montreal and Toronto.

The Southern Hardwood Traffic Association has requested a conference with carriers for a discussion of proposals now before the Southern Freight Association, affecting rates on lumber from southern points on and east of the Mississippi river and south of the Ohio river. The proposed changes include both increases and decreases in rates. The conference is requested with a view to working out a more satisfactory basis for the proposed changes.

Western shippers, including the American Farm Bureau Federation and the National Poultry and Egg Association have filed a complaint with the Interstate Commerce Commission, asking for a new scale of rates on poultry, eggs and dairy products from Western Trunk Line territory to points east of the Illinois-Indiana state line and charging unfair treatment since March 20, 1924, when new schedules were put into effect. The commission is asked to prescribe a new scale of rates and to award reparation.

The Southern Railway on April 26, will establish a new extra-fare "de luxe" passenger train to be known as the Crescent Limited, to run between New Orleans and New York. The train will be operated over the Pennsylvania between New York and Washington and over the West Point Route and the Louisville & Nashville south of Atlanta. It will leave New Orleans at 10 p. m. and run through in 36¾ hours, arriving in New York at 11:45 a. m. Southbound, the train, will leave New York at 6:40 p. m. and run through in 37 hours, 35 minutes.

The Atchison, Topeka & Santa Fe has changed the schedules of two of its trains operating between Chicago and Los Angeles, California. The Scout will leave Chicago at 1:45 a. m. instead of 10:30 p. m., and will arrive in Los Angeles at 11 a. m. instead of 8:05 a. m. It will be routed by way of Amarillo, Tex., instead of by way of Albuquerque, N. M. The Navajo will leave Chicago at 9:45 a. m. instead of 10:25 a. m., and will arrive in Los Angeles at 7:30 a. m. as before. Returning, it will leave Los Angeles at 9:15 a. m. instead of 8:45 a. m., and will arrive in Chicago at 8:30 a. m. instead of 9:30 a. m. Observation cars have been added to the equipment of the Navajo returning from Los Angeles to Chicago. This company has discontinued two trains operating between Kansas City, Mo., and Amarillo, Tex., and has substituted new trains between La Junta and Albuquerque which will connect with trains to Amarillo.

### Hell Gate Bridge Decision Modified

The Port of New York Authority, by a supplemental order dated March 5, has withdrawn its request to the New York, New Haven & Hartford to open the Hell Gate Bridge route to freight moving over other than New Haven lines to and from New England points (*Railway Age*, February 21, page 483). At the hearing counsel for the Port Authority said there was no complaint of inadequacy of service on the part of the New Haven to and from points in New England like Boston, Framingham, Worcester, Springfield, Westfield and Pittsfield—all points reached by the New York Central. From this it seemed only fair that if the New Haven was handling this traffic satisfactorily over its own lines, there was no reason why it should make joint rates and establish through routes over the New York Central. The Port Authority now orders that "traffic between points on the Long Island Railroad and points in New England be excluded from the scope of this investigation."

## Commission and Court News

### Personnel of Commissions

President Coolidge had not up to Wednesday night sent to the Senate a new appointment of a member of the Interstate Commerce Commission to succeed Mark W. Potter, who resigned on February 20, and the fact that he had not resubmitted to the new Senate after March 4 the name of Thomas F. Woodlock, on whose nomination no action had been taken by the Senate before the close of the session, led to unconfirmed reports that he would make a new appointment. It was also understood that the name of George B. McGinty, secretary of the commission, who is from Georgia and therefore would be more satisfactory to some of the southern Senators who opposed Mr. Woodlock's appointment, was under serious consideration. If no new appointment is made the President could give Mr. Woodlock a recess appointment, after the Senate adjourns, and he could serve until the new Senate has an opportunity to act on the nomination.

### Court News

#### Movement of Engine Without Headlight

##### Violation of Boiler Inspection Act

The Kentucky Court of Appeals holds that the movement of a locomotive without a headlight was a violation of the Boiler Inspection Act and the proximate cause of the death of a brakeman thrown from a cut of cars as the result of a collision.—*Callihan's Admr. v. C. & O. (Ky.)* 263 S. W. 339.

#### Trackmen Assume Risk of Drowning

The North Dakota Supreme Court holds that a section crew, having the duty to patrol the tracks in time of storm, assume the risks ordinarily incident to the performance of that duty, but not extraordinary risks, that is, risks which might be obviated by the exercise of reasonable care on the part of the railroad. In an action for the drowning of two section men while patrolling tracks the evidence was held not to establish a failure of the railroad to exercise reasonable care under the circumstances disclosed.—*Everetts v. Northern Pacific (N. Dak.)* 198 N. W. 685.

### United States Supreme Court

#### Safety Appliance Act—Injury to Brakeman

In an action under the Federal Employers' Liability Act and the Safety Appliance Act for the death of a brakeman, it appeared that a draw-bar pulled out of a car in a freight train at Budd, Ia., whereupon the crew chained the car to the one ahead and the engine pulled the whole train onto a siding, which lies on a gentle descent, and stopped. The intention was to run around and pull back the rear portion. The deceased and the conductor went between the cars to disengage the connecting chain; the engineer cut off the engine, the car moved slowly down the grade, and the brakeman, caught by the chain, suffered fatal injuries. A rule of the company provided that employees should advise the engineer when they were going between or under cars and must know that he understood their purpose before they put themselves in any dangerous position. The deceased gave no such warning, although familiar with the rule and with the grade upon which the train stood.

On certiorari to the Supreme Court of Minnesota, the railroad company claimed that when the car came to rest on the siding it had ceased to be "used" within the Safety Appliance Act; but the United States Supreme Court thought it clear that the use, movement or hauling of the defective car, within the meaning of the statute, had not ended at the time of the accident. The things shown to have been done by the deceased certainly amount to no more than the contributory negligence or assumption of the risk, and both of these are removed from consideration by the Liability

Act. \* \* \* His injury was within the evil against which the provisions for safety appliances are directed. He went into the dangerous place because the equipment of the car did not meet the statutory requirements especially intended to protect men in his position.

Judgment for plaintiff was affirmed.—*C. G. W. v. Schendel*. Decided March 2, 1925. Opinion by Mr. Justice McReynolds.

### State Law Not Applicable

#### to Optional Interstate Route

A dealer in lumber at Oxly, Mo., applied for two cars to ship lumber to St. Louis on June 12, 1920. The Missouri Pacific failed to furnish him any cars until August 19, 1920, although between these dates other shippers at Oxly had applied for and had been furnished cars for lumber. The dealer, alleging discrimination under Missouri Rev. Stat. §9985, sued for \$1,000 actual damages, and claimed treble damages under §9990.

The dealer did not attempt to designate any route, intrastate or interstate, for the transportation of the lumber. The railroad has two routes from Oxly to St. Louis, one wholly within Missouri, the other by Thebes, crossing the Mississippi there and running through Illinois into St. Louis, and alleged that the usual and regular way of routing lumber would be over the latter route and it would be interstate commerce; and that §9985 had no application to the case. The line on the Missouri side of the river passes over Iron Mountain and other Ozark hills, and the routing through Illinois over the more level line is made as a matter of operating convenience and economy. After two trials in the Springfield (Mo.) Court of Appeals, 210 Mo. App. 311, 212 Mo. App. 512, in the latter of which a verdict of \$1,000 and judgment for three times that amount was reduced by remittitur to \$502.50 and judgment for \$1,507.50, the case was brought to the United States Supreme Court on certiorari by the railroad company.

The Supreme Court holds that the case is governed by federal statutes and that the state law did not apply. The court said: "Congress has enacted laws for the regulation of the furnishing of cars to shippers very similar to §9985. \* \* \* It is elementary and well settled that there can be no divided authority over interstate commerce. Transportation from Oxly to St. Louis over the route partly within and partly outside of Missouri is interstate commerce. It was shown that the shipment would have moved by that route. The state law has no application. The judgment of the state court was therefore reversed. *Missouri Pacific v. Stroud*. Decided March 2, 1925. Opinion by Mr. Justice Butler.

### Right to Construct New Bridge

#### Over Newark Bay Affirmed

The appeal of the cities of Newark and Jersey City and the State of New Jersey in their suit to enjoin the construction of a new bridge across Newark Bay by the Central of New Jersey has resulted in the affirmation by the Supreme Court of the United States of the Circuit Court of Appeals' decree in favor of the railroad, which affirmed the dismissal of the complaint by the district court (287 Fed. 196) on the ground that it failed to state a cause of action.

It was claimed that the company was without power to build the bridge; that it would be an unlawful purpresture and public nuisance; and that its construction without the permission of the New Jersey Board of Commerce and Navigation and the Port Authority was unlawful.

The Supreme Court holds that by the legislation empowering the company to construct, maintain, and use the railroad, the state of New Jersey consented to the construction of the bridge. The powers granted to the company under the act of 1860, under which the first bridge was built, were not exhausted by the first construction. The act specified draws and the number and width of openings, but did not prescribe the number of tracks or other elements which were to constitute the railroad. The company was empowered to have as many tracks, within the width specified, as it deemed necessary.

The replacement now going on was authorized by the United States by the acts of August 8, 1919, and February 15, 1921, and the plans were approved by the Chief of Engineers and Secretary of War, December 29, 1922. As both state and federal governments had consented to the construction of the bridge, the court found it unnecessary to decide whether the acts of Congress and

approval of the plans by the War Department would be sufficient without the consent of the state, or whether, in respect of the navigable waters of Newark Bay, wholly within the state of New Jersey, the legislation of Congress supersedes the laws of the state.

The laws of New Jersey, it is held, do not require approval of the plans for the proposed bridge by the state Board of Commerce and Navigation. Although the company applied to that board for the approval of its plans and all its applications were denied, it was free to insist that such approval was not required. There is no provision in any of the laws relating to the Port Authority which requires that body's approval.—*Newark v. Central of New Jersey*. Decided March 2, 1925. Opinion by Mr. Justice Butler.

### Non-Compliance With Labor Board

#### Decision Held Not Conspiracy

The Supreme Court of the United States has affirmed, as briefly noted on page 578, March 7, the decree of the Circuit Court of Appeals, Third Circuit, 1 Fed. (2nd) 171, affirming the decree of the federal district court for eastern Pennsylvania, 296 Fed. 220, dismissing the bill of the Pennsylvania Railroad System and Allied Lines Federation No. 90 against the Pennsylvania. The issues involved the construction and application of Title III of the Transportation Act of 1920, and the controversy was a continuation of that considered in *Pennsylvania v. Labor Board*, 261 U. S. 72.

The bill in the present case was filed to enjoin what was charged to be a conspiracy by the Pennsylvania and its officers to defeat the provisions of the Act and deprive the employees of the rights with which the provisions of Title III of the Act intended to vest them in their dealings with the company; averring that in the effort to deprive them of their proper representation and maintain the plan of the company, the company resorted to coercion with threats of discharge, and further violated their rights by preventing a large number of employees who were furloughed from casting their votes in the election.

The whole issue in the case, the Supreme Court said "is whether Title III in pointing out what Congress wished the parties to the dispute to do was intended by Congress to be a positive, obligatory law. \* \* \* The Supreme Court has decided that there is nothing compulsory in the provisions of the statute as against either the company or the employees upon the basis of which either acquired additional rights against the other which can be enforced in a court of law.

"What the complainants are seeking to do," the court said, "is to enforce by mandatory injunction a compliance with a decision of the Board not based on the legal rights of the parties, but on its judgment as to what legal rights the disputants should surrender, or abate in the public interest and in the interest of each other, to maintain harmonious relations between them necessary to the continuance of interstate commerce, and to avoid severing those relations as they would have the strict legal right to do. Such a remedy by injunction in a court it was not the intention of Congress to provide."

Since it was not the intention of Congress to make such an action of the railroad criminal or legally actionable, the complaint was held not to aver a conspiracy, and without that, equitable relief could not be granted.

The complaints also sought damages on behalf of the members of Federation No. 90. First, for employees on furlough when notified to return on the scale of wages made effective by the company July 1, 1921, who refused to return except on the old scale prevailing September 1, 1920, and who sought wages though they did not work. Second, employees who worked under the company scale for a year and then struck, who claimed the difference between the old and new scales. Third, those who did not strike, but accepted wages on the new scale, who claimed the difference between the two scales till the filing of the bill.

The court did not find it necessary to consider these claims on their merits. "Even if the Federation No. 90 and its members as representatives in a class suit in equity could recover such claims as damages incidental to granting the main equitable relief prayed for, the denial of the prayer for the equitable relief and the dismissal of the main part of the bill carries with it such incidental claims without prejudice to their prosecution at law by individual claimants as they may be advised."—*Pennsylvania System and Allied Lines Federation No. 90 v. Pennsylvania*. Decided March 2, 1925. Opinion by Mr. Chief Justice Taft.



## Labor News

A wage increase agreement averting a threatened strike of firemen and enginemen on the Atchison, Topeka & Santa Fe Coast lines, was signed on March 8 by representatives of the company and the workers. The controversy arose through the company's refusal to grant a five per cent increase in pay and to withdraw its demand for the abolition of the two-day rule between San Bernardino, Calif., and Barstow. The workers' demands are similar to those granted on the Southern Pacific.

During the last two weeks, seventeen more western roads have signed agreements with the engineers and firemen on the basis of the Southern Pacific settlement, granting wage increases of approximately six per cent without important changes in working rules. A total of 46 western roads have now signed agreements. The 17 latest roads include the Chicago, Milwaukee & St. Paul, the Duluth & Iron Range, the East St. Louis Junction, the Minneapolis & St. Louis, the Missouri-Kansas-Texas, the Northwestern Pacific, the Quincy, Omaha & Kansas City, the Texas & Pacific, the Union Railway of Memphis, the Oregon-Washington R. R. & Navigation Co., the Mississippi River & Bonne Terre, the Union Stock Yards of Omaha, the Chicago, Rock Island & Pacific, the Chicago, Rock Island & Gulf, and the Sioux City Terminal.

## Labor Board Decisions

### Maintenance Work Done By

#### Contract; Employees Laid Off

A claim of a number of maintenance of way employees on the Chicago & North Western for back pay, it being alleged that they were laid off while certain maintenance work was being performed by contractors' forces, has been denied by the Railroad Labor Board. The board found that the dispute was dissimilar to contracting cases previously handled, in which the board has rather uniformly disapproved the carriers' course, on the grounds that the change operated to reduce forces or wages or to establish less favorable rules and working conditions. The board found that it was clearly shown that the contract in this case was entered into as an expedient for the purpose of having certain important bridge work attended to, contracts being signed at a time when the carrier's forces were engaged in other work and being put into operation prior to the time that any reduction was made in the carrier's forces. The board recognized that reductions made in the regular bridge and building crews of the North Western were in conformity with the practice that has prevailed of bridge and building crews being reduced to a minimum during the winter months.—*Decision No. 2860.*

### Living Quarters for Section Foremen

In a dispute between the Colorado & Southern and the United Brotherhood of Maintenance of Way Employees and Railway Shop Laborers, the Railroad Labor Board has decided that the railway is not obliged to furnish living quarters for its section foremen, even though it may have done so at one time. A section foreman had been given notice to vacate a company-owned house (which he had occupied for a number of years) on account of the necessity for its removal. The management contended that there is no article in the schedule making it obligatory to furnish living quarters, but that at isolated points where living quarters are not obtainable and in order to keep employees at those points, it has provided living quarters. These, in many cases, consisted of old box car bodies properly fitted up. The employees claimed that, inasmuch as the section foreman involved had accepted the position with the understanding that as long as his work was satisfactory the provision of living quarters was part of his compensation, to deprive him of them would be equivalent to reducing his compensation as it would be necessary for him to pay rent for the quarters which he would occupy. The Labor Board overruled this contention and denied the claim of the employees that the section foreman be reimbursed to the extent of the amount that he has been required to pay in rent since his use of the company-owned house was discontinued.—*Decision No. 2858.*

## Foreign Railway News

### Newfoundland Railways to

#### Build Equipment in Own Shops

The Newfoundland railways will build 50 or more passenger cars in their own shops, according to Vice-Consul Barringer, at St. John's, N. F.

### Strike in Germany

Some classes of railway employees—principally freight handlers—in Saxony and in Berlin have gone on strike for higher wages, according to press reports from Berlin. Some fear is felt lest the strike should spread to other classes and to other districts to the prejudice of the successful operation of the railways under the Dawes plan.

### Reduction of Forces on Mexican Railways

The committee appointed by the Department of Communications of Mexico to study the best procedure in reducing expenses of the railways has reported that a reduction in wages, except in very few cases, is not necessary. It recommends that approximately 4,000 employees and laborers be discharged, claiming that there are at least that many excess on the payroll. Only in cases where rates are greater than in similar work in other branches of the government will there be a reduction in wages. Secretary Tejeda of the Department has also ordered a revision of all contracts to which the railroads have been a part.

### Reorganization of Irish Free State Railways

Irish railways to the number of 26, with issued capital amounting to £27,314,304 and mileage totaling 2,052, were combined during the last quarter of 1924 to form a new operating company to be known as the Southern Railways Company, according to a report prepared by Vice-Consul Collins at Dublin. This fusion and the reduction of rates under the railway tribunal's decision of October 22, promises to remove one of the alleged causes of agricultural and industrial depression. The reductions, which became effective January 1, provide for a cut of 12½ per cent in passenger fares and decreases in freight rates amounting in some cases to 50 per cent. Under the new schedule, maximum passenger rates are to be those in effect on August 4, 1914, plus 75 per cent instead of 100 per cent as heretofore.

### Miscellaneous Items

The following items have been received by the Department of Commerce from its agents in various parts of the world:

A loan of \$345,000 for the construction of a railway connecting Itajahy, Brazil, with the main line of the Santa Catharina Railway, has been requested from the Brazilian Treasury by the Minister of Transportation.

A total of \$2,000,000 will be spent on material for the Libau-Mitau Railway. Purchases will include rails, fish-plates, bolts, nuts, etc. Terms are 25 per cent cash and 75 per cent government debentures bearing 6 per cent interest and falling due in 6 years. Details may be obtained from the Transportation Division of the Bureau of Foreign and Domestic Commerce.

The Bilbao-Las Arenas Railway is to be electrified, according to the Spanish press. This 27-kilometer branch of the Santander-Bilbao Railway has borne such heavy traffic in recent years that the present facilities are inadequate.

Brazilian railway congestion is worse, due to insufficiency of cars. Conditions on the Nazareth line are particularly bad, thousands of carloads of goods and produce having to wait months for transportation.

Italian railway earnings increased \$10,000,000 in the last half of 1924, compared with the previous year, due to heavy traffic.

German firms have secured contracts for 50 locomotives for the Sorocabana Railway, Brazil, according to the Export Market

(Poessneck). The Krupp works received an order for 40 locomotives, while Richard Hartmann, A. G., was given an order for 10.

The Swedish State Railways showed improvement during 1924, the surplus for the first eleven months amounting to 32,571,413 crowns against 27,129,963 crowns during the corresponding period of 1923. The income for 1924 was less than for 1923 by 36,167 crowns, but expenditures in the later year were less by 9,365,185 crowns. Mileage was increased by 137 kilometers, making the total at the end of the year 5,905 kilometers.

A Swiss syndicate will sell locomotives to Rumania on very advantageous terms, according to rumors current in Bucharest. The locomotives are in good condition but are no longer needed because of the electrification of the Swiss railways.

New night services over European railway lines, effective January 5, were decided upon at the international conference at Prague on January 21. The following night trains were put in operation: Berlin to Prague and Leipzig; Berlin to Prague via Dresden and Tetschen; Prague to Vienna via Ceske Velenice; Prague to Linz and Berlin via Karlsbad; and Berlin to Marienbad.

### Mexican National Operated by Ministry

The management of the National Railways of Mexico has been transferred to the Department of Communications under a decree just signed by President Calles. This eliminates the office of director-general, under which the railways have been operated since they began to be administered by the government. The decree provides for a department directly under the supervision of Secretary Adalberto Tejeda.

It is understood that the chief reason for the President's changing the management of the railways is the number of irregularities which are alleged to have occurred under the old management and the present conflict over wage adjustments.

Mr. Tejeda has issued a circular to the Department of Industry, Commerce and Labor, chamber of commerce, mining and engineering organizations and the several railway labor organizations, requesting that they forward suggestions covering such revisions as they deem advisable for the better operation of the railways.

As soon as these suggestions are received the Department of Communications will submit a bill to the Congress to amend the present railway law which is in the original form as issued in 1899.

### Indian Railways Improve

LONDON.

Coincident with drastic administrative reforms and a revival of commercial and industrial activity which has greatly improved their financial position, the Indian railways are undergoing a technical overhauling: This, as pointed out in the Chief Commissioner's report for 1923-24, has already effected economies so substantial that it may now "be claimed that the railways as a state property have become a paying concern," according to the Times (London) Trade Supplement.

Three stages of reform may be noted. First came the elimination of unnecessary expenditure, by means of reduction of forces, economy in the use of material (including fuel), curtailment of overhead by keeping down stocks of materials, and prevention of losses due to theft and damage of goods in transit. Then came the introduction of new methods of utilizing equipment, whether in the actual handling of traffic or in maintenance and renewals; in this stage successful efforts have been made to improve freight transportation by better operating methods in yards and better control of train movements, while there has also been a marked curtailment of the time spent in overhauling locomotives and rolling stock. The third stage covers larger measures of economy in handling costs, and includes reorganization of the administrative and executive machinery; reorganization and extension of workshops and their equipment with modern appliances; electrification and other work designed to improve the method of transport, handling of freight, etc.

A revision of previous construction programs has resulted in the decision to proceed at once with lines covering a total length of 624 miles, the view being taken that South India and the new coalfields in Central India afford most promising areas for development.

Concerning the lines projected in Central India, the government of India is of opinion that the industrial progress of the country will stimulate the consumption of coal and make it necessary

to open up new coal-bearing areas. Investigation has proved that good coal in large quantities is available in the area lying between the East Indian and Bengal-Nagpur railways running westward from the Jheria coalfields as far as Katni in the Central Provinces. It is accordingly proposed to provide the following lines to serve as outlets towards the north and west of India:— (a) Daltonganj to Hutar, 17 miles; (b) Hutar to Hesla, 163 miles; (c) Hutar to Anuppur, 188 miles. The construction of these lines, which are expected to give a return of nearly 7 per cent on the capital outlay, will reduce the cost of transporting coal to the west of India, with corresponding benefit to the industrial undertakings in the Bombay Presidency and to the working expenses of the railways serving Bombay.

Electrification of certain local services of the two Bombay railways has been sanctioned, and analogous schemes at Calcutta and Madras are under consideration. Standardization of rolling stock is much discussed, though the actual progress towards the ideals in view has been very limited.

### Civil Strife Declines in China and Railways Benefit

PEKING.

During January the railway situation has been clearing gradually in the north. Every few days additional cars and locomotives have been surrendered by the military forces until lines radiating from Peking are doing a business about 60 per cent of normal. The Peking-Hankow line advertises its expectation of resuming express service over the whole line during the coming week.

The best of the lines at present is the Peking Suiyuan. General Feng Yu-hsiang, the "Christian general," has at last accepted his appointment as "manager of the defense of the northwest frontier." As a matter of fact many of his advisers have been urging him to take his position in that section and start a movement for the colonization of unoccupied lands by means of disbanded soldiers and their families. The Peking-Suiyuan for all but the first hundred miles runs through a territory of scant population and towards a territory occupied only by nomadic Mongols. The fact that it traverses rough, easily defended country probably was not overlooked by Feng; nor the further fact that historically this position was considered of the highest value strategically in the defense of Peking. At any rate, Feng has been moving his army up the Peking-Suiyuan line to the end of the Paotou extension. And as the cars have returned he has seen to it that they were loaded to capacity with the hides, wool, tobacco and grain which had been accumulating there waiting for transport facilities. The result has been that the Peking-Suiyuan has been reporting a revenue of \$40,000 a day, or at the rate of \$15,000,000 a year compared with about \$10,000,000 for the best year hitherto. Feng has also injected discipline into the line. Soldiers are prevented from shipping goods for commercial purposes as "military supplies" and he has ejected soldiers from all passenger cars except the one provided on each train for them.

When the news of this sudden good fortune reached the public in Peking a flood of creditors swooped down on the management asking for pay. Of course the golden harvest has not piled up much of a fund, as yet, compared with the size of the debts of that line. But encouragement is given toward the refunding plan which is under discussion by which the many domestic debts bearing high interest may be carried at a lower rate and material debts may be converted into a time loan. Since most of the latter were for capital investment some funding plan is the logical solution of the problem.

In the meantime war has broken out again around Shanghai. Lu Yung-hsiang, who was driven out of Chekiang and Shanghai by Chi Hsieh-yuan and Sun Chung-fang in September, has returned to the field at the head of a division of troops furnished him by Chang Tso-lin, including Chang's Russian legion. This action has put the Shanghai-Nanking and the Shanghai-Hangchow Ningpo lines out of commercial service for about three weeks. Lu has finally driven Chi out of Shanghai, but the commander who was the immediate instrument of this success seems inclined to hold Shanghai as the price, while future action against Sun Chung-fang seems to be undecided. This serves to prevent the lines from being released to commercial service.

The default which occurred on the Hukuang bonds has been met by payment to holders of all except the German issues on February 1. A disagreement as to the agency by which coupons of the German issue would be cashed prevented complete payment, but this issue has been settled and on February 12 the latter class of coupons are to be cashed.



## Equipment and Supplies

### Locomotives

RUTLAND RAILROAD.—See New York Central.

INDIANA HARBOR BELT.—See New York Central.

THE NEVADA COPPER BELT has ordered one locomotive from the American Locomotive Company.

THE MCCLOUD RIVER has ordered two Prairie type locomotives from the American Locomotive Company.

W. I. CARTER & BROTHERS have ordered one Mikado type locomotive from the Baldwin Locomotive Works.

THE DETROIT TERMINAL has ordered two eight-wheel switching locomotives from the American Locomotive Company.

THE SOUTHERN PACIFIC has authorized the construction in its Pacific System shops of 18 Mountain type locomotives.

THE WICHITA FALLS & SOUTHERN has ordered two Consolidation locomotives from the Baldwin Locomotive Works.

THE SLOSS-SHEFFIELD STEEL & IRON COMPANY has ordered two Consolidation locomotives from the Baldwin Locomotive Works.

THE CENTRAL OF GEORGIA has ordered five Mountain type locomotives from the American Locomotive Company. Inquiry for this equipment was reported in the *Railway Age* of February 21.

THE CHICAGO, BURLINGTON & QUINCY has ordered 13 Mountain type locomotives from the Baldwin Locomotive Works. Inquiry for this equipment was reported in the *Railway Age* of February 28.

THE ATLANTIC COAST LINE has ordered 20 Pacific and 15 Santa Fe type locomotives from the Baldwin Locomotive Works. Inquiry for 25 locomotives was reported in the *Railway Age* of March 7.

THE CHICAGO, ROCK ISLAND & PACIFIC has ordered 10 Santa Fe type locomotives from the American Locomotive Company. Inquiry for this equipment was reported in the *Railway Age* of February 21.

THE NEW YORK CENTRAL has ordered 5 eight-wheel switching locomotives from the Lima Locomotive Works for the Indiana Harbor Belt and 3 Pacific type locomotives from the American Locomotive Company for the Rutland Railroad. Inquiry for the 3 locomotives was reported in the *Railway Age* of January 24. The company is now inquiring for 5 tenders for switching locomotives.

### Freight Cars

THE TIDAL OIL COMPANY, Tulsa, Okla., is inquiring for 60 tank cars.

THE ATLANTIC COAST LINE is inquiring for 500 box cars of 40 tons' capacity.

THE NEW YORK CENTRAL is inquiring for 100 air dump cars of 50 tons' capacity.

THE MINERAL POINT ZINC COMPANY is inquiring for six gondola cars of 50 tons' capacity.

THE CENTRAL RAILWAY OF BRAZIL is inquiring for 90 gondola cars of 45 metric tons' capacity.

THE DOW CHEMICAL COMPANY has ordered one tank car of 10,000 gal. capacity from the American Car & Foundry Company.

A. GUTHRIE & Co. has ordered six air dump cars of 50 tons' capacity from the Koppel Industrial Car & Equipment Company.

SWIFT & Co., has ordered 300 refrigerator cars from the Illinois Car & Manufacturing Company. Inquiry for this equipment was reported in the *Railway Age* of February 21.

THE NATIONAL PLATE GLASS COMPANY has ordered 35 hopper cars of 70 tons' capacity from the Bettendorf Company. Inquiry for 35 cars was reported in the *Railway Age* of January 24.

THE CHICAGO, BURLINGTON & QUINCY has ordered 500 mill gondola cars from the Western Steel Car & Foundry Company. Inquiry for this equipment was reported in the *Railway Age* of February 7.

THE SOUTHERN PACIFIC is inquiring for 2,000 single sheathed box cars, 1,000 drop bottom gondola cars, 200 oil tank cars and 200 single sheathed automobile cars. All of this equipment is to be of 50 tons' capacity.

THE NEW YORK CENTRAL has ordered 500 all-steel high side gondola cars from the American Car & Foundry Company. This is the exercise of an option which was taken when a previous order for 500 cars was placed in January with the same builder. The company is now inquiring for 500 steel underframe refrigerator cars of 70,000 lb. capacity; for from 300 to 400 flat car bodies and for from 400 to 500 70-ton steel coal car bodies.

### Passenger Cars

THE RICHMOND, FREDERICKSBURG & POTOMAC is inquiring for 6 passenger coaches.

THE CHICAGO, ROCK ISLAND & PACIFIC has ordered five baggage and mail cars from the Standard Steel Car Company. Inquiry for this equipment was reported in the *Railway Age* of February 7.

THE HAVANA CENTRAL is inquiring for 6 gasoline motor cars each car to seat 35 passengers and to have a baggage compartment. These cars are for service on the United Railways of Havana.

### Iron and Steel

THE BALTIMORE & OHIO has ordered 1,000 tons of steel for bridges from the American Bridge Company.

THE ILLINOIS CENTRAL has ordered 1,500 tons of structural steel for catenary bridges from the Continental Bridge Company.

THE ATCHISON, TOPEKA & SANTA FE has ordered 400 tons of structural steel from the Kansas City Structural Steel Company.

THE CLEVELAND, CINCINNATI, CHICAGO & ST. LOUIS has ordered 125 tons of structural steel for use in Indiana, from the McClintic-Marshall Company.

### Machinery and Tools

THE MISSOURI PACIFIC has placed an order for a 1,500 lb. steam hammer.

THE CLEVELAND, CINCINNATI, CHICAGO & ST. LOUIS has placed an order for a 6-ft. radial drill.

THE NASHVILLE, CHATTANOOGA & ST. LOUIS has placed an order for a 96-in., 600-ton wheel press.

THE ATCHISON, TOPEKA & SANTA FE is inquiring for one 24-in. heavy duty type crank shaper, one heavy duty type 54-in. car wheel boring machine, one 24-in. upright drill, one 20-in. upright drill and three double heavy-duty type dry emery grinders each with two 24-in. by 3-in. wheels.

THE PENSION PLAN of the Chicago, Burlington & Quincy cost the company in 1924 the sum of \$504,021. At the end of the year pensions were being paid to 843 retired employees, their average age at retirement being 69 years 4 months and the average years of their continuous service rendered the company prior to retirement being 37 years and 2 months. During the year the Relief Department paid out \$247,069 in death benefits and \$342,258 in disability benefits, a total of \$589,327. At the end of the year there were 32,671 members in the Relief Department.

## Supply Trade News

The Kansas City Bolt & Nut Company, Kansas City, Mo., has opened an office in Tulsa, Okla.

William T. Clark has joined the engineering staff of the Trico Fuse Manufacturing Company, Milwaukee, Wis.

The Duff Manufacturing Company, Pittsburgh, Pa., has moved its New York office from 50 Church street to 250 Park avenue.

Charles A. Swan has been appointed assistant manager of steel sales of the Timken Roller Bearing Company, with headquarters at Canton, Ohio.

The Northern Conveyor & Manufacturing Company, Milwaukee, Wis., will construct a one-story, 60 ft. by 120 ft., factory building at Janesville, Wis.

C. O. Dowdell has been appointed special western railroad representative of the Barber Asphalt Company, with headquarters at 1344 Union Trust building, Chicago.

The Kilby Car & Foundry Company, Anniston, Ala., has opened an office at 2038 Grand Central Terminal, New York, in charge of J. N. Brownrigg and Fred MacDonald.

A. W. Wiese has been appointed manager of the Philadelphia office of the Strom Ball Bearing Manufacturing Company, Chicago, with headquarters at 309 Lincoln building.

A. S. Taylor, formerly sales engineer for the United Alloy Steel Corporation, Canton, Ohio, is now with the Central Steel Company, Massillon, Ohio, in the same capacity.

George M. Hogan, secretary and general sales agent of the Sellers Manufacturing Company, with headquarters in Chicago, has been promoted to vice-president, with the same headquarters. He was born in Chicago on October 9, 1883, and received his education in St. Ignatius College, Chicago. He entered the employ of the Sellers Manufacturing Company on August 20, 1906, as a shipping clerk in the plant in Maywood, Ill. He held several positions in the operating and accounting departments in the plant until October 1, 1912, when he entered the sales department as sales agent, with headquarters in Chicago. He held the latter position until April, 1917, when he was promoted to general sales agent, which position he held until January 1, 1918, when he was appointed assistant secretary and general sales agent, with the same headquarters. In February, 1919, he was promoted to secretary and general sales agent, with the same headquarters, which position he has held until his recent promotion.

Allan M. Cullum has been appointed to the sales force of the Reading Iron Company, Reading, Pa. His headquarters will be at the general office of the company in Reading.

The Universal Crane Company, Elyria, Ohio, has appointed E. F. Craven, Greensboro, N. C., distributor for North Carolina. The Graham B. Bright Company, Richmond, Va., for Virginia, and the Wagner Sales Company, Knoxville, Tenn., for Tennessee.



G. M. Hogan

The Ohio Locomotive Crane Company, Bucyrus, Ohio, has placed Arnold Walters, district sales manager, in charge of a newly opened district office at 647 Book building, Detroit, Mich.

The Master Tool Co., Cleveland, Ohio, reclaimers of pneumatic tools, has appointed M. W. Scott, eastern representative, with headquarters in Pittsburgh, Pa., and A. B. Stewart & Co., Chicago, western representative.

W. L. Bryson, formerly district manager of the Beaver Products Company, Kansas City, Mo., has been appointed manager of the St. Louis division of the Celotex Company, with headquarters in St. Louis, Mo.

The Woodman Railway Supply Company, Railway Exchange building, Chicago, has been incorporated to take over the sale of journal boxes, including the Joliet and Franklin boxes, formerly handled by the Northwestern Malleable Iron Company, Milwaukee, Wis. Officers of the new company are, president, G. A. Woodman, sales manager of the Northwestern Malleable Iron Company; vice-president and secretary, A. M. Talbot, vice-president of the A. H. Talbot Company; treasurer, A. M. Tufts, manager of the Commercial Utilities Company. Mr. Woodman was born in Dunkirk, N. Y., in 1866 and in 1883 entered the employ of the Brooks Locomotive Works as a machinist, later becoming a draftsman. In 1887 he was appointed mechanical engineer of the Milwaukee & Northern, now a part of the Chicago, Milwaukee & St. Paul, which position he held until 1889, when he returned to the employ of the Brooks Locomotive Works as a draftsman. From 1891 to 1895 he was a draftsman for the Illinois Central and in the latter year was appointed chief draftsman of the Lima Locomotive & Machine Company. In 1897 he was appointed assistant master car builder of Swift & Company, Chicago, which position he held until 1898 when he was appointed assistant superintendent of the American Car & Foundry Company, Chicago. In 1900 he became mechanical engineer in charge of production of the Kirby Equipment Company, Chicago, which position he held until 1912 when he became sales manager of the Northwestern Malleable Iron Company, with headquarters in Chicago.



G. A. Woodman

The McMyler Interstate Company, Bedford, Ohio, has appointed The Lewis-Patten Company, San Antonio, Tex., sales representative in the state of Texas to specialize in the sale of gasoline and steam shovels, clam shell buckets and locomotive cranes.

The American Cable Company, New York, has opened a district sales office at 160 N. LaSalle street, Chicago. W. H. Slingluff has been appointed to handle the company's sales in the midwestern states. Mr. Slingluff has been identified with the wire rope field for more than 26 years.

A. B. Lacy, who was purchasing agent of the Virginia Railway previous to 1920, has opened an independent office in the National Bank of Commerce building, Norfolk, Va., where he will continue to represent the Oliver Iron & Steel Corporation of Pittsburgh and other manufacturers as well as maintain his relation as vice-president of M. T. Blassingham & Co., Inc., of Norfolk, dealers in lumber and cross ties.

Richard W. Lewis, vice-president and treasurer of Gardiner & Lewis, Inc., 30 Church street, New York, was elected president and treasurer at the annual meeting of the directors. He



succeeded as president J. B. W. Gardiner, who is no longer connected with the company. **Russell B. Reid**, general manager, was elected vice-president and general manager and **Jacob W. Winkler** was re-elected secretary, all with headquarters at New York. **C. W. Merriken**, representative, has been appointed western sales manager at Chicago and **Allen A. Gould**, representative, has been appointed sales manager at Cleveland, Ohio.

**Justin E. Griess**, vice-president and general sales manager of the McMyler Interstate Company, Cleveland, Ohio, died on February 26 after an illness of a few days. He was born in Cincinnati, Ohio, in 1874 and graduated from the mechanical engineering department of Purdue University in 1899. He became a representative of manufacturing companies in the engineering field, with headquarters in Cleveland. Later he organized the company of Griess & Kaltenbach, consulting engineers, and in 1902 in partnership with Robert W. Kaltenbach took over the plant of the Interstate Engineering Company, Cleveland, Ohio. In 1910 the McMyler Manufacturing Company, Cleveland, was merged with this company under the name of the McMyler Interstate Company.

### American Car & Foundry Company Increases Stock

Stockholders of the American Car & Foundry Company, at a special meeting on March 12, approved the recommendation of the directors for an increase in the number of shares of common stock from 300,000 of \$100 par value to 600,000 no par value and to exchange two shares of new stock for one of the old. Relative voting power of preferred and common holders will not be affected as two shares of new stock will only have one vote.

"The outlook for the country is very promising for 1925 and, in fact, for the next three years," said William Woodin, president, at the close of special stockholders' meeting.

"The railroads, our customers, are in the best condition in ten years," he said. "There is no adverse legislation in view concerning them. Of course, orders for railroad equipment are coming in a little slowly, but they are sure, and the railroads have the money to finance them. This is the first time in years that such a condition has prevailed. The country generally is in a prosperous condition and good times are bound to continue. The only cloud on the horizon is the matter of tax reduction. We should have tax legislation reducing taxes as quickly as possible, because until that time living costs and operating costs will continue to be high. The new stock of American Car & Foundry will carry a 6 per cent rate. Plants are operating comfortably full and the situation is satisfactory."

### Obituary

**D. W. Edwards**, vice-president of Greenlee Brothers Company, Rockford, Ill., dropped dead in the Rice hotel, Houston, Tex., on March 5, from heart disease. Mr. Edwards had long been identified with the development of adzing and boring machines in tie treating plants.

### Trade Publications

**WELDLESS STEEL POLES.**—Fifteen advantages of a one-piece seamless tubular steel pole manufactured by Mannesmann's special process, permitting the use of high tensile strength steel, are listed in a four-page bulletin issued by Viele, Blackwell & Buck, New York. The pole contains no swaged joints nor welded seams and can be manufactured to any length, wall thickness and any desired diameter up to 12 in.

"PACKING FOR EXPORT" is the title of a report which has been issued by the Department of Commerce, Washington, discussing at length the losses and annoyances caused by the shipment of goods in imperfect packages and giving detailed rules for packing all sorts of materials so that they will withstand the hard usage incident to ocean voyages. The results of experiments at the Forest Products Laboratory, Madison, Wis., are given. Copies of the book, at \$1.25 each, may be had from the Superintendent of Documents, Government Printing Office, Washington.

## Railway Construction

**ATLANTIC COAST LINE.**—This company will shortly award a contract for an addition to the Railroad Y. M. C. A. at Florence, S. C., to cost approximately \$70,000.

**BALTIMORE & OHIO.**—A contract has been placed with the Ferro Construction Company, Chicago, Ill., covering the erection of superstructures for two bridges on the Toledo division, between Lima, Ohio, and Toledo. The new structures consist of plate girder spans, and will weigh approximately 220 tons. An order has been placed with the American Bridge Company for the fabrication and delivery of approximately 950 tons of structural material to be used in superstructures of new bridges on various parts of the system. The new structures will consist principally of plate girder spans.

**BOSTON & ALBANY.**—A contract has been awarded to the Palmer Steel Company, Springfield, Mass., for the structural steel work on this company's new station at Springfield.

**CANADIAN NATIONAL.**—This company has awarded a contract to the Bennett & White Construction Company for the construction of a freight shed at Sixth street east and Ninth avenue, Calgary, Alta., to cost approximately \$34,000.

**CANADIAN NATIONAL.**—George P. Graham, Minister of Railways and Canals, has announced in the House of Commons at Ottawa that bills would be introduced this session at early date authorizing the construction of two new Canadian National branch lines in Saskatchewan. Although the Minister made no specific statement it is known that the two branches proposed are the Turtleford and the Bengough lines. Both of these bills introduced last session by the Minister, were passed by the House but rejected in the Senate. Part of the cost of their construction is to be borne by trust funds in the possession of the government of Saskatchewan which have been voted for that purpose.

**CHICAGO, BURLINGTON & QUINCY.**—This company has prepared plans for a roundhouse at Peoria, Ill.

**CHICAGO, BURLINGTON & QUINCY.**—This company is contemplating the construction of a stock yards, with necessary track changes at Lincoln, Neb.

**CHICAGO, ROCK ISLAND & PACIFIC.**—This company will construct a passenger station at Alva, Okla., to replace a structure which was recently destroyed by fire.

**CENTRAL OF GEORGIA.**—A contract has been awarded to the Artley Company, Savannah, Ga., for the construction of a warehouse to cost approximately \$35,000 at Savannah, Ga.

**DENVER & RIO GRANDE WESTERN.**—This company is planning to spend \$1,000,000 during 1925 for improvements in its Burnham shops at Denver, Colo.

**FORT WORTH & DENVER SOUTH PLAINS.**—This company was chartered on March 6 in Texas to construct a line from Estelline, Tex., to Dimmitt, a distance of 200 miles.

**GULF, COLORADO & SANTA FE.**—This company is preparing plans for the construction of a \$300,000 one-story machine shop 120 ft. by 340 ft. and a wing 70 ft. by 100 ft., at Cleburne, Tex.

**GULF, COLORADO & SANTA FE.**—This company is preparing plans for a two-story and basement freight house, 40 ft. by 100 ft., at Fort Worth, Tex.

**ILLINOIS CENTRAL.**—This company is contemplating the erection of a union passenger station at Jackson, Miss., to cost approximately \$750,000.

**ILLINOIS CENTRAL.**—This company is preparing plans for the construction of a passenger station at Hazelhurst, Miss., to cost approximately \$45,000.

**LOUISVILLE & NASHVILLE.**—This company, in conjunction with the city of Nashville, Tenn., is planning the construction of a re-

inforced concrete bridge over its tracks at Chestnut street, to cost approximately \$30,000.

**MOBILE & OHIO.**—This company, in connection with the Louisville & Nashville, will close bids on March 18 for a one-story brick veneer and stucco passenger station at Humboldt, Tenn.

**PENNSYLVANIA.**—A contract has been awarded to the Dravo Contracting Company, Pittsburgh, for masonry work on a new bridge to be built over the Beaver river at Beaver Falls, Pa.; approximate cost, \$200,000.

**PENNSYLVANIA.**—Improvements to the passenger terminal at Pittsburgh to cost approximately \$12,000,000 are contemplated and will be undertaken as soon as approval from the Public Service Commission is secured and certain streets are vacated by the city. The city has already passed an enabling ordinance.

**RICHMOND, FREDERICKSBURG & POTOMAC.**—New sidings, to cost approximately \$71,000, have been authorized for Doswell, Va., Arkendale and Featherstone. Existing sidings at Massaponax, K. N. Tower and W. H. Tower will be extended at an approximate cost of \$63,500.

**SAN BENITO & RIO GRANDE VALLEY.**—This company has awarded a contract to W. H. Nichols & Co., Dallas, Tex., to grade and build bridges on 15 miles of line from Santa Maria, Tex., east.

**SOUTHERN.**—This company closed bids on March 10 for a second-story addition to its freight and passenger station to cost \$48,000 at Somerset, Ky.

**SOUTHERN PACIFIC.**—This company is preparing plans for a warehouse with an 850 ft. frontage on the ship channel at Clinton, Tex., as a part of the improvement which the company will make at its deep-water terminal at this point. The warehouse will contain approximately 160,000 sq. ft. of floor space.

**ST. LOUIS-SOUTHWESTERN.**—This company is preparing plans for the construction of a brick passenger station, 50 ft. by 140 ft. at Fordyce, Ark.

**WACO, BEAUMONT, TRINITY & SABINE.**—The Interstate Commerce Commission has issued a certificate authorizing this company to extend its line from Livingston, Tex., to Beaumont and to construct a belt line at Beaumont. Portions of the new line must be secured through trackage rights contracts with existing railways, if possible. The entire cost of the project including equipment is estimated at \$2,606,253. The company had also asked permission to build a line from Beaumont to West Port Arthur and a marine facilities line from Port Neches to Port Arthur, but this was denied.



P. & A.

Railway Employees Inspecting Cars on Harwich-Zeebrugge Train Ferry Between England and Belgium

## Railway Financial News

**BOSTON & MAINE.—Abandonment.**—Examiner Davis, of the Interstate Commerce Commission, in a proposed report, has recommended that the commission permit the abandonment of the line of the Nashua & Acton from Nashua, N. H., to North Acton, Mass., 20 miles.

**CANADIAN PACIFIC.—Income for 1924.**—The report for the year ended December 31, 1924, shows total income of \$32,628,207 after taxes and charges, equivalent after preferred dividends to \$11.01 a share earned on \$260,000,000 outstanding common stock, compared with \$34,899,409 or \$12 a share in 1923. Of total earnings in 1924 available for common stock, special income provided \$3.83 a share while \$7.18 a share came from railway lines and lake steamers.

**CENTRAL OF GEORGIA.—Equipment Trust.**—The Interstate Commerce Commission has authorized an issue of \$1,410,000 equipment trust certificates, Series P., to be sold at not less than 96.14. The equipment includes 10 locomotives, 600 freight cars and 6 passenger cars, having an approximate cost of \$1,902,367.

**CHICAGO, MILWAUKEE & ST. PAUL.—Confer on Report.**—Jerome Hanauer, of Kuhn, Loeb & Co., and Charles E. Mitchell, president of the National City Bank, conferred on Tuesday with W. W. Colpitts, of Coverdale & Colpitts, engineers, who have been commissioned to make a report of the physical assets and general financial structure of the Chicago, Milwaukee & St. Paul. They did not comment on the conference, in which, it is understood, Mr. Colpitts gave a preliminary outline of the report.

Rumors concerning the St. Paul's financial and physical condition and the measures that it may be possible to propose to meet the \$48,000,000 maturities on June 1, are current in the financial district in great number and variety. The 4 per cent gold bonds due in June, which had recently fallen to a price of 62½, on Wednesday, as a result of heavy sales, declined from that price to a price of 53 and closed at 55½. The bonds of later maturity, which have lately been selling some as low as 52, had up to Wednesday not been recently affected. On Wednesday, however, declines in the prices of these issues of three or four points took place.

**CHICAGO, ROCK ISLAND & PACIFIC.—Bonds.**—The Interstate Commerce Commission has authorized an issue of \$1,000,000 of general mortgage bonds, to be delivered to the trustee under the first and refunding mortgage, and also an issue of \$1,000,000 first and refunding mortgage bonds, to be pledged as collateral for notes.

**COWLITZ, CHEHALIS & CASCADE.—Bonds.**—This company has applied to the Interstate Commerce Commission for authority to execute a new first and refunding mortgage for \$1,000,000 and to issue \$729,000 of 6 per cent bonds for the purpose of retiring outstanding obligations and constructing a 14-mile extension.

**DENVER & RIO GRANDE.—Court Grants Examination of Former Directors.**—Supreme Court Justice Nathan Bijur of the New York Supreme Court has handed down a decision directing that Edward T. Jeffrey, Arthur Coppell, Kingdon Gould, Edgar L. Marston and Harry Bronner, former directors and John P. Howland, secretary, appear in the Supreme Court, Special Term, Part II, and submit to examination before trial as defendants in the \$200,000,000 suit brought by the stockholders' committee representing some 6,000 stockholders.

Justice Bijur also directs the defendant to produce books, records and other documents kept by the railroad through its secretary or other officers, relating to the issues. The complaint charges, among other things, that by reason of an alleged conspiracy concocted and carried out by the defendants the properties of the company were wrecked and the securities of the company valued in excess of \$89,000,000 made worthless.

Justice Bijur in his opinion holds that the defendants cannot relieve themselves of being examined before trial as they claimed they could, in opposing the motion made by the Denver & Rio Grande common and preferred stockholders respecting their acts and conduct as officers or directors of the railroad, even though

(Continued on page 773)



# Annual Report

## Fortieth Annual Report of the Buffalo, Rochester & Pittsburgh Railway Company, for Year Ending December 31, 1924

The Directors of the Buffalo, Rochester and Pittsburgh Railway Company submit to the Stockholders the following report for the year ending December 31, 1924.

### Road Operated

	1924 Miles	1923 Miles	Decrease or Increase
Owned .....	369.71	370.28	.57
Leased .....	90.30	90.30	—
Trackage rights.....	130.06	131.11	1.11
Total length of road operated.....	590.01	591.69	1.68
Second track .....	211.88	212.59	.71
Sidings .....	466.02	470.39	4.37

Total miles of all tracks, all steel rail. 1,267.91 1,274.67 6.76

The decrease of line owned was caused by the abandonment of 1.12 miles of the Eleanora Branch, less an increase of .55 miles at other points due to reclassification.

Trackage rights of 1.24 miles over the Pennsylvania Railroad in Pennsylvania were relinquished, and .13 miles increased over other carriers' lines by remeasurements.

Various track changes decreased the second track .71 miles.

Sidings were decreased 4.37 miles, including .79 miles of lines used under trackage rights.

### Income

	1924	1923	Increase or Decrease
Operating Income:			
Revenues .....	\$15,951,853.12	\$22,024,650.59	—\$6,072,797.47
Expenses .....	13,451,122.39	20,175,268.68	— 6,724,146.29
Net revenue .....	\$2,500,730.73	\$1,849,381.91	+ \$651,348.82
Tax accruals .....	\$407,000.00	\$401,023.05	+ \$5,976.95
Uncollectible revenues.....	932.41	863.21	+ 69.20
	\$407,932.41	\$401,886.26	+ \$6,046.15
Total operating income....	\$2,092,798.32	\$1,447,495.65	+ \$645,302.67
Non-operating income.....	1,035,431.65	2,116,279.61	—1,080,847.96
Gross income.....	\$3,128,229.97	\$3,563,775.26	—\$435,545.29
Deductions for interest, rentals, etc. ....	2,506,346.63	2,482,276.72	+24,069.91
Net income—surplus avail- able for dividends.....	\$621,883.34	\$1,081,498.54	—\$459,615.20
Return on capital stock.....	3.77%	6.55%	—2.78%

Non-operating income decreased \$1,080,847.96. Of this amount \$974,103.30 is due to a marked reduction of the credit balance in "Hire of freight cars" account, as a result of the storage of coal cars in excess of traffic requirements, and the balance is a decrease in Rentals and Income from securities and accounts.

The "Deductions for interest," etc. increased \$24,069.91. This is mainly the result of interest paid on unfunded debt and the tax on bonds in Pennsylvania assumed by the company.

The net income for the year is \$621,883.34, a decrease of \$459,615.20 over the preceding year, and is equal to 3.77 per cent on both classes of stock.

### Dividends

Dividends were paid in cash on:

	1924	1923
Preferred stock.....	\$6,000,000 6% \$360,000 6% \$360,000	
Common stock .....	10,500,000 4% 420,000 4% 420,000	
Total.....	\$16,500,000	\$780,000

Since the close of the fiscal year your Board of Directors has declared a semi-annual dividend of three per cent on the preferred stock, payable February 16, 1925.

No action was taken on the common stock dividend.

### Capital Stock

There has been no change during the year in this account. The total outstanding capital stock of the company amounts to \$16,500,000, and consists of \$6,000,000 preferred stock and of \$10,500,000 common stock.

### Funded Debt

During the year \$3,000,000 Consolidated Mortgage 4½ per cent

bonds were sold with the authority of the Interstate Commerce Commission. The proceeds were applied to the payment of—

\$1,000,000 6 per cent U. S. Government Loan

\$1,000,000 5½ per cent Demand Notes

and the balance was used to reimburse the treasury for payments made for improvements and betterments.

In addition the following bonds were retired during the year:

Equipment Agreement Series F.....	\$174,000.00
Equipment Agreement Series G.....	178,000.00
Equipment Agreement Series H.....	125,000.00
Equipment Agreement Series I.....	100,000.00
Equipment Agreement Series K.....	80,000.00
Equipment Agreement Series L.....	128,000.00
Equipment Agreement Series 10.....	133,600.00
Total .....	\$918,600.00

The net result is an increase of \$1,081,400.00 in the funded debt of the company.

There are now in the treasury of the company \$2,350,000 unpledged consolidated 4½ per cent mortgage bonds.

### Loans

As noted above, the company's demand notes for \$1,000,000 referred to in last year's report, were paid off and cancelled.

### Cost of Road

Capital account was charged during the year with \$117,845.47 for investment in road, as follows:

Elimination of grade crossing, Silver Lake Junction, N. Y....	\$2,008.19
Overhead bridge, Carrollton, N. Y.....	2,303.69
Other bridges .....	16,218.10
Siding facilities, Salamanca, N. Y.....	9,760.84
Other siding facilities.....	14,966.92
New shop machinery and tools.....	9,218.04
Increased weight of rail, etc.....	67,718.08
Increased ballast, etc.....	4,529.90
Miscellaneous .....	12,656.71
Less—Abandonment of 1.12 miles Eleanora Branch.....	\$139,380.47
Total.....	\$117,845.47

All work undertaken during the year was completed with the exception of the grade crossing elimination at Silver Lake Junction, N. Y., the overhead bridge at Carrollton, N. Y., and the siding facilities at Salamanca, N. Y.

### Leased Lines

Advances were made to leased lines for expenditures for additions and betterments as follows:

ALLEGHENY AND WESTERN RAILWAY	
Viaduct, New Castle, Pa.....	\$6,026.23
Siding facilities .....	1,794.18
Turntable, Butler Junction, Pa.....	6,424.14
Increased weight of rail, etc.....	4,514.57
Strengthening steel bridges.....	93,907.98
Additional station facilities, Pittsburgh, Pa.....	1,323.53
Miscellaneous .....	6,457.79
	\$120,448.42

CLEARFIELD AND MAHONING RAILWAY	
Increased weight of rail, etc.....	\$5,843.40
Miscellaneous .....	2,752.33
	\$129,044.15

MAHONING VALLEY RAILROAD	
Less—Miscellaneous .....	90.69
	\$128,953.46

Less—Net amount of equipment retired, etc.....	39,976.30
Net amount advanced.....	\$88,977.16

The strengthening of the steel bridges, mentioned in last year's report is now completed.

With the exception of the Viaduct at New Castle, Pa., all the other work was completed during the year.

### Cost of Equipment

Expenditures were made for additions to equipment as follows:

Six passenger train cars, and balance of cost of ten passenger train cars purchased last year.....	\$160,039.18
One work equipment car purchased.....	894.29
Sundry betterments, including reclassification of one passenger service car and fourteen freight train cars.....	27,796.69
	\$188,730.16

[ADVERTISEMENT]

There was credited for equipment sold, transferred or destroyed, the following book values, a part of which, less salvage, was charged to Operating Expenses, and the balance, representing the depreciation since June 30, 1907, was charged to Depreciation Account:

Two locomotives .....	\$34,532.16	
Three hundred and sixty freight train cars.....	245,179.38	
Two passenger train cars.....	9,559.04	
Twenty-five work equipment cars.....	11,453.90	300,724.48

Making a net credit of..... \$111,994.32

Two of the lighter type locomotives, displaced by the additional heavy modern power recently purchased, were sold during the year. In addition seven gondola cars and two four wheel cabooses were sold.

The rolling stock statistics are affected as follows:  
The total tractive power of engines now aggregates 14,716,267 pounds, a decrease of 94,409 pounds during the year.

The average tractive power of each engine increased 186 pounds, being 49,886 pounds, as against 49,700 pounds a year ago.

The total carrying capacity of cars in freight service now amounts to 692,450 net tons, a decrease of 13,075.

The average carrying capacity or efficiency of each freight car increased .28 net tons, being 44.91 tons as against 44.63 tons last year.

Of the cars in passenger service 59.41 per cent are of all steel construction, and in the freight service 99.00 per cent of the cars are all steel, or are equipped with steel underframes.

The following table indicates the relative changes in equipment for the past ten years:

	Tractive power of engines in pounds		Capacity of cars in freight service in tons of 2,000 pounds	
	Average of each engine	Aggregate tractive power	Average for each car	Aggregate capacity
1915 .....	35,999	11,627,535	43.19	751,531
1916 .....	36,257	11,493,536	43.25	750,847
1917 .....	39,060	12,773,410	43.37	737,327
1918 .....	43,312	16,025,362	43.94	777,657
1919 .....	44,100	15,346,830	43.97	771,541
1920 .....	45,630	14,281,845	44.12	748,215
1921 .....	46,400	13,688,103	44.20	737,255
1922 .....	46,630	13,522,696	44.37	727,382
1923 .....	49,700	14,810,676	44.63	705,525
1924 .....	49,886	14,716,267	44.91	692,450
Increase over 1915..	13,887	3,088,732	1.72 (Dec.)	59,081
Per cent.....	38.58	26.56	3.98 (Dec.)	7.86

#### Passenger Revenues

The gross passenger revenue amounted to \$1,628,372.05, a decrease of 7.63 per cent, or \$134,483.84 against the same period in 1923.

The automobile travel, inactivity in the coal mining regions, and slow recovery of business, all contributed toward this unfavorable result.

The average rate received per passenger per mile decreased .073 cent, being 3.138 cents as compared with 3.211 cents the preceding year.

The average distance each passenger was carried increased .8 mile, being 32.5 miles against 31.7 miles.

Passengers carried in 1924.....	1,597,160
Passengers carried in 1923.....	1,732,760
A decrease of 7.83 per cent, or.....	135,600
Passengers carried one mile in 1924.....	51,900,115
Passengers carried one mile in 1923.....	54,902,112
A decrease of 5.47 per cent, or.....	3,001,997

#### Freight Revenues

The gross freight revenue amounted to \$13,575,578.13, a decrease of 29.70 per cent, or \$5,734,803.80, compared with 1923.

The average rate received per ton per mile increased .048 cents, being .918 cents compared with .870 cents for the same period in 1923.

The average distance each ton was hauled decreased 8.59 miles, being 149.11 miles, against 157.70 miles last year.

The inability of the large operators, paying union wages, to compete with the non-union mines, closed many of the collieries shipping over your line. The coal tonnage now moving comes largely from smaller operations, and from the mines in other districts not dominated by the union wage scale.

The bituminous coal traffic decreased 3,450,603 tons or 42 per cent. The depression in the iron and steel industry prevailing throughout the year caused a reduction of 709,587 tons, or 59 per cent in coke, iron ore, pig and bloom iron. Other freight shows a slight increase.

The revenue tonnage moved was as follows:

	1924	1923	Increase	Decrease
Bituminous coal.....	4,765,115	8,215,718		3,450,603
Coke .....	253,619	371,333		117,714
Iron ore .....	79,659	611,502		531,843
Pig and bloom iron.....	157,072	217,102		60,030
Other freight.....	4,665,607	4,651,209	14,398	
Total.....	9,921,072	14,066,864		4,145,792
A decrease of 29.47 per cent, or.....				1,479,310,868
Tons moved one mile in 1924.....				2,218,411,169
Tons moved one mile in 1923.....				739,100,301

A decrease of 33.32 per cent, or.....

The average number of revenue tons carried one mile per revenue freight train mile, excluding the mileage of helping engines, decreased 114.04 tons, being 736.38 tons against 850.42 tons a year ago.

The average number of revenue tons carried one mile per revenue freight engine mile, including the mileage of helping engines, decreased 38.51 miles, being 515.18 miles against 553.69 miles a year ago.

The averages for the past ten years are as follows:

	Train load	Engine load
Year ending June 30, 1915.....	707	477
1916.....	786	502
Six months ending December 31, 1916.....	792	510
Year ending December 31, 1917.....	836	545
1918.....	943	602
1919.....	884	586
1920.....	943	602
1921.....	754	520
1922.....	790	534
1923.....	850	554
1924.....	736	515
Increase over 1915.....	29	38
Per cent.....	4.10	7.97

The non-revenue freight traffic, not included in any other figures of this report, is as follows:

	1924	1923
Number of tons.....	755,706	1,282,098
Number of tons carried one mile.....	64,145,298	114,212,378

#### Expenses

Operating Expenses decreased \$6,724,146.29, or 33.33 per cent, in which each primary account participated, as follows:

	Increase	Decrease	Per Cent.
Maintenance of way.....	\$2,199,923.84		56.21
Maintenance of equipment.....	2,396,175.77		33.85
Traffic .....	1,431.79		.46
Transportation .....	2,192,920.97		26.00
Miscellaneous operations.....	2,400.53		7.51
General .....	23,809.81		4.63
Transportation for investment, Cr.....	\$92,516.42		87.31
Total.....	\$6,724,146.29		33.33

In general the decrease in expenses was due to decreased traffic combined with the enforcement of economies wherever practicable.

An increase of wages affecting telegraphers on April 1, 1924, the further increase ordered by the U. S. Railroad Labor Board for telegraphers, agents, etc., on July 16, 1924, and the increases allowed engineers and trainmen on July 1, 1924, added approximately \$71,612.49 to the expenses of this year.

Beginning June 16, 1924, motor trucks affording economical service were substituted for way freights on a part of the Rochester Division.

During the year an average of 3,500 coal cars and 56 locomotives ready for service were stored on the line.

In spite of the adverse conditions, the operating ratio was again decreased, and is lower than for any year since 1917.

The percentage of each group of operating expenses to the operating revenue for the past seven years is as follows:

	1924	1923	1922	1921	1920	1919	1918
Maintenance of way.....	10.74	17.77	14.28	13.75	16.58	16.95	15.28
Maint. of equipment.....	29.36	32.14	38.85	34.18	31.05	37.73	32.29
Traffic .....	1.93	1.40	1.42	1.50	1.03	1.26	1.02
Transportation .....	39.12	38.29	40.07	43.33	45.98	48.73	44.26
Miscellaneous operations...	.18	.15	.17	.21	.17	.20	.14
General .....	3.07	2.33	2.83	3.38	2.46	2.82	2.13
Transp. for Inv. Cr.....	.08	.48	.09	.01	.06	...	...
	84.32	91.60	97.53	96.34	97.21	107.69	95.12

The average cost per ton per mile is .754 cents, a decrease of .036 cents from last year.

#### Pensions

The pension system was inaugurated on July 1, 1903. At present the total number of pensioners on the rolls is 119, and the pensions paid during the year amounted to \$71,977.67, an increase of 16 pensioners and \$6,108.33 in the payments made, compared with 1923.

The statistics for the past five years are as follows:

	1924	1923	1922	1921	1920
Total number enrolled	236	211	196	177	159
Number deceased or discontinued .....	117	108	97	89	79
Number on roll.....	119	103	99	88	80
Amount paid.....	\$71,977.67	\$65,869.34	\$56,712.93	\$47,975.75	\$39,585.84

[ADVERTISEMENT]



## General Remarks

All valuation surveys, maps, schedules and inventories have been practically completed, and conferences have been had with the Bureau of Valuation, preliminary to the issuance of a Tentative Valuation.

The cost of valuation work on your company's properties to date has reached \$277,701.22 of which \$69,005.20 was assumed by the U. S. Railroad Administration.

No decision has yet been announced by the Interstate Commerce Commission in the matter of the consolidation of the railway properties of the United States into a limited number of systems, referred to in last year's report.

On August 20, 1924, your company petitioned the Interstate Commerce Commission to be relieved entirely from compliance with the orders to install automatic train control devices, and received a favorable decision thereon on December 30, 1924.

The expenditure to date on this matter amounted to \$37,735.03.

The Ontario Car Ferry Company, Limited, paid a dividend of 5 per cent for the year ending December 31, 1923. The sum of \$12,500 received on the \$250,000.00 of this company's stock was credited to Non-Operating Income Account.

The dividends paid by the following water companies:

Ketner Water Co.....	\$92,000 stock @ 9%	\$8,280.00
Kyle Water Co.....	85,000 stock @ 15%	12,750.00

were also credited to the same account.

The acknowledgments of the Board are renewed to its officers and loyal employees for their faithful and efficient service.

By order of the Board,

WILLIAM T. NOONAN,  
President.

Rochester, N. Y., February 21, 1924.

[ADVERTISEMENT]

(Continued from page 770)

as claimed by the defense their resignations had been tendered. The justice holds that there is no proof that the resignations were accepted by a quorum of the board of directors of the company.

**GULF, COLORADO & SANTA FE.—Tentative Valuation Cancelled.**—The Interstate Commerce Commission has cancelled and referred back to the Bureau of Valuation for further consideration and report the tentative valuation of this company's property which was served on June 6, 1924, because a review of the report indicated that certain revisions and corrections were necessary. Similar action was taken also as to the reports on the Grand Canyon and the Sunset.

**INTERNATIONAL RAILWAYS OF CENTRAL AMERICA.—Bonds Offered.**—F. J. Lisman & Co. are offering an additional issue of \$1,600,000 first mortgage 5 per cent sinking fund gold bonds, dated May 1, 1912, and due May 1, 1972, at a price of 79½ and interest, yielding about 6½ per cent.

**NEW YORK CENTRAL.—Notice Relative to Bond Conversion.**—Notice has been issued to the holders of the 20-year 6 per cent convertible, debenture bonds, maturing in 1935, as follows:

"The quarterly dividend on New York Central stock will be paid May 1, 1925, to stockholders of record at the close of business on April 1, 1925.

"In order to receive the May 1st dividend, holders of the convertible bonds must convert them on or before April 1, 1925, so that the stock issued in their place may be outstanding and of record on that date.

"The indenture under which the convertible bonds were issued contains no provision for adjustment of interest and dividend, and May 1st interest will not be payable on converted bonds because they will not then be outstanding."

**NEW YORK, CHICAGO & ST. LOUIS.—Protective Committee Gives Reasons for Opposing Lease of C. & O.**—The Chesapeake & Ohio Stockholders' Protective Committee, with headquarters at Richmond, Va., has issued a summary of the reasons for opposition to the new Nickel Plate consolidation.

A holder of 100 shares of Chesapeake & Ohio common, if he deposits his stock according to the plan, would have, the committee says, a comparative equity of 20.4 per cent in the combined earnings of the companies for 1924, and the holder of 100 shares of the present Nickel Plate would have an equity of 46.1 per cent. The committee points out that the Chesapeake & Ohio earned 19 per cent on its common stock, if one takes into account the undistributed earnings of the Hocking Valley, in which it has an equity, whereas the present Nickel Plate earned only 13.90 per cent.

"Notwithstanding this remarkable earning record," the committee continues, "the officials and board of directors of the Chesapeake & Ohio are recommending to the stockholders that they lease their valuable road and all of its equipment and surrender its treasury assets to the new Nickel Plate system for 999 years. An objecting stockholder has no guaranty that he will receive any fixed rate of dividend on his stock. He is completely at the mercy of the directors of the new Nickel Plate Company."

The Van Sweringen proposal, the committee asserts, does not provide for the issuance to the Chesapeake & Ohio of any new Nickel Plate stock for its \$8,837,900 equity in Hocking Valley common which earned \$17.70 per share in 1924. Consequently, it says, the non-assenting stockholders of the Chesapeake & Ohio will lose their equity in the earnings of the Hocking Valley.

**Protective Committees Disagree.**—Hobart S. Bird, chairman of the New York committee of C. & O. stockholders which is also opposing the merger, has said yesterday that he believed the proposed lease of the Chesapeake & Ohio could be enjoined in court.

"The outstanding voting stock of the Chesapeake & Ohio is now about 800,000 shares," said Mr. Bird. "We estimate that 250,000 shares, about equally divided between preferred and common, have not assented to the merger, either by deposit or proxy.

"The New York committee does not advise the conversion [as recommended by the Richmond committee] of the 5 per cent bonds of 1946 for the purpose of voting against the proposed lease at the stockholders' meeting of March 30. If all the \$36,000,000 bonds were converted into common and combined

with the present dissenting stock to vote solidly against the merger, the approval of the lease could be prevented. This appears to be impossible.

"If only a few bonds were converted, the holders will have sacrificed their preferred position in an empty gesture involving an immediate loss of income. Even if a large amount were exchanged, the Van Sweringens would be able to frustrate the movement by buying proportionate amounts of stock. The net result would be to convert the bondholders into stockholders for investment and get a certain number of stockholders for speculation out of their present holdings, possibly at advancing prices."

**PENNSYLVANIA.—Offering of Panhandle Bonds.**—Kuhn, Loeb & Co. offered on Thursday a new issue of \$26,000,000 Pittsburgh, Cincinnati, Chicago & St. Louis general mortgage 5 per cent gold bonds, Series B, due April 1, 1975. The bonds are priced at 99, to yield 5.06 per cent.

These bonds will be guaranteed as to both principal and interest by the Pennsylvania Railroad Company.

The bonds are to be issued under the General Mortgage of the Company dated June 1, 1920, and will be secured by a direct mortgage upon all the lines of railroad and appurtenances thereto now owned by the company and upon all properties acquired by the issuance of any of the general mortgage bonds. The present properties include about 1,862 miles of railroad from Pittsburgh, Pa., to Columbus, O., Indianapolis, Jeffersonville (across the Ohio River from Louisville, Ky.), Terre Haute, Ind., East St. Louis and Chicago, Ill., together with all appurtenances, equipment, engine houses, etc., large and valuable shops, freight stations and yards at most of these cities, the shops at Columbus, O., being the largest shops west of Pittsburgh on the Pennsylvania Railroad System. These general mortgage bonds are subject to \$69,753,000 of prior lien bonds which may not be extended or renewed and for the retirement of which, at or before maturity, general mortgage bonds are reserved.

The purpose of the sale of these bonds is to provide funds to make payment to the United States government for capital expenditures made by it upon the property of this company during federal control, to repay money heretofore borrowed for the purpose of making payments on account to the government for such expenditures, to pay the Pennsylvania Railroad Company for capital expenditures made by it upon the property of the company and to retire maturing prior lien obligations.

All of the railroad properties of the Pittsburgh, Cincinnati, Chicago & St. Louis Railroad Company are leased to the Pennsylvania Railroad Company, under a lease running for 999 years from January 1, 1921. The Pennsylvania Railroad Company agrees under said lease to pay a sum sufficient to cover interest on indebtedness, sinking funds, taxes, administration expenses and 4% dividends on the capital stock of the company for the first five years and 5% dividends thereafter.

The Pittsburgh, Cincinnati, Chicago and St. Louis Railroad Company has outstanding \$84,714,500 of capital stock of which the Pennsylvania Railroad Company or its subsidiaries own approximately 99 per cent.

**SACRAMENTO NORTHERN RAILWAY.—Stock.**—This company has applied to the Interstate Commerce Commission for authority to issue \$1,000,000 of capital stock and to assume obligation and liability in respect of the securities of the Sacramento Northern Railroad. Of the stock \$995,000 is to be sold to the Western Pacific.

**SEABOARD AIR LINE.—Authority Granted to Pledge Bonds.**—The Interstate Commerce Commission has authorized this carrier to issue for pledge and repledge from time to time, up to June 30, 1927, \$1,500,000 first and consolidated mortgage bonds, Series A, as collateral security for short term notes. These bonds were formerly pledged as part of a total of \$4,040,500 as security for loans from the government, but have more recently been released through repayment in part of the loan.

**ST. LOUIS-SAN FRANCISCO.—Correction.**—In the item appearing on page 492 of the *Railway Age* of February 21 giving the St. Louis-San Francisco 1924 earnings the figure of \$24,239,826 common stock in the hands of the public was incorrect. The amount should have been \$45,249,200. The earnings per share were correctly shown.

**ST. LOUIS SOUTHWESTERN.—Rock Island Control.**—Announcement was made on Wednesday by Edwin Gould, chairman of the board, that a controlling interest in the St. Louis Southwestern had passed from the Goulds to the Chicago, Rock Island & Pacific.

It is understood that Mr. Gould retains holdings in the Cotton Belt, but no longer a controlling interest.

The following directors of the Chicago, Rock Island & Pacific have been elected to the board of the St. Louis Southwestern: Charles Hayden, chairman of the board of the Rock Island; J. E. Gorman, president; Marcus L. Bell, vice-president and general counsel, and N. L. Amster.

A statement issued by Mr. Gould said in part:

"The alliance with the Rock Island commends itself upon geographic, traffic and economic considerations as a mutually beneficial arrangement. It commends itself as a definite public advantage and as a logical development of the legislative policy which favors natural and voluntary selection as against arbitrary and compulsory grouping.

"You will allow me to express my personal gratification at this advent into the counsels and management of the St. Louis Southwestern property; and perhaps, too, I may admit some personal and sentimental satisfaction that the property into which the management of which I was inducted by my father and to which I have devoted the ordinary term of a business life has become so desirable as to enlist in its continued and increasing prosperity the co-operation of one of the greatest systems of our country. . . . When released from official responsibilities at, I trust, no distant time, I shall not feel released from my obligation to contribute as I may be able to the continued prosperity of a property to which I feel a genuine devotion."

Mr. Hayden, speaking for the Rock Island, said that a merger of the two properties was not contemplated at the present time, although, he added, its acquisition is in accordance with the general policy of the Interstate Commerce Commission relative to consolidations. No change in the official personnel or policies of the Cotton Belt are contemplated, he said.

**WESTERN PACIFIC.—Stock Dividend.**—Directors of the Western Pacific Railroad Corporation at their meeting in New York on Wednesday declared a stock dividend of one share of preferred and one share of common stock on each six shares of common and preferred outstanding, and also a cash dividend of \$5 a share on the common stock, provided stockholders approve a proposal to change the status of the preferred stock so that the latter may be cumulative to the extent of two years' dividends at all times. The regular quarterly dividend of \$1.50 on the preferred was declared, payable April 3 to holders of record on March 23. Dividends on the preferred will also be paid, provided stockholders approve the proposal to change the status of the preferred as above noted, of \$1,558 representing accumulative dividends earned prior to January 1, 1925. The payment of the stock dividend had been expected as it had been previously announced that such payment could be made in connection with the acquisition of interests in the Denver & Rio Grande Western. The cash dividend was entirely unexpected. Announcement of the dividends was reflected by an increase in the price of the common stock whereby that stock closed at 55 on Wednesday, an increase for the day of 16 points. The preferred closed at 99½, an increase of 6½ points.

The official announcement by Alvin W. Krech, chairman of the board, said:

"The Board of Directors of Western Pacific Railroad Corporation authorized the call for a meeting of its stockholders on May 11, 1925, the purpose of the meeting to approve the proposal of the board to change the status of the preferred stock so that the same may be cumulative to the extent of two years' dividends at all times. If this be done the company proposes, in addition to a distribution of one share of preferred and one share of common to the present stockholders for each six shares of stock now outstanding, whether preferred or common, to pay the common stockholders a cash dividend of \$5 per share, and to pay to the preferred stockholders the present accumulated and unpaid dividends of \$1,558 per share earned prior to January 1, 1925, and not paid.

"The stock dividend distribution results from the capitalization of recoveries made in proceedings against the old Denver Company, and the cash dividends will be paid out of surplus."

### Dividends Declared

Alabama & Vicksburg.—5 per cent, payable April 1 to holders of record March 2.

Lehigh Valley.—Common, \$.87½, quarterly; preferred, \$1.25, quarterly; both payable April 1 to holders of record March 14.

Missouri-Kansas-Texas.—Preferred A, \$1.25, quarterly, payable May 1 to holders of record April 15.

Mohawk Valley.—3 per cent, payable April 1 to holders of record March 23.

Northern Pacific.—1¼ per cent, quarterly, payable May 1 to holders of record March 19.

Pere Marquette.—Common, 1 per cent, quarterly, payable April 1 to holders of record March 16. Prior preferred, 1¼ per cent, quarterly; five per cent preferred, 1¼ per cent, quarterly; both payable May 1 to holders of record April 15.

St. Joseph, South Bend and Southern.—Common, 1 per cent; preferred, 2½ per cent; both payable March 16.

St. Louis, Rocky Mountain & Pacific.—Preferred, 1¼ per cent, quarterly, payable March 31 to holders of record March 16.

Vicksburg, Shreveport & Pacific.—Common, 1¼ per cent; preferred, 2½ per cent; both payable April 1, to holders of record March 2.

### Trend of Railway Stock and Bond Prices

	Last March 10	Last Week	Last Year
Average price of 20 representative railway stocks	81.90	84.23	62.36
Average price of 20 representative railway bonds	90.47	90.86	83.83

## Railway Officers

### Financial, Legal and Accounting

**W. J. Daeschner**, assistant auditor of freight accounts of the Michigan Central, with headquarters at Detroit, Mich., has been promoted to auditor of freight accounts, with the same headquarters, succeeding **A. S. Dutton**, who has resigned on account of ill health. **F. S. Chalmers** has been appointed assistant auditor of freight accounts, with headquarters at Detroit, succeeding Mr. Daeschner.

### Operating

**Don Schuyler Colby**, trainmaster of the Pasco division of the Northern Pacific, with headquarters at Yakima, Wash., has been appointed acting assistant superintendent, with headquarters at Billings, Mont.

**A. A. Dunphy**, yardmaster of the Canadian Pacific, with headquarters at Regina, Sask., has been promoted to trainmaster of the Edmonton division of the Alberta district, with headquarters at Red Deer, Alta.

**Roger Timberlake Taylor**, assistant to the general superintendent of the Northern Pacific, with headquarters at Livingstone, Mont., has been promoted to superintendent of icing facilities, with headquarters at St. Paul, Minn.

**E. B. Rush**, trainmaster of the Atlantic Coast Line, with headquarters at Charleston, S. C., has been appointed acting district superintendent at Lakeland, Fla., succeeding **J. F. Council**, who has been granted a leave of absence on account of ill health.

### Mechanical

**G. H. Warning** has been appointed master mechanic of the Canadian National, with headquarters at Regina, Sask.

**H. W. Faus**, special engineer on the staff of the chief engineer of motive power and rolling stock of the New York Central Railroad, has been appointed engineer of materials and equipment tests, with headquarters at New York, succeeding **G. E. Doke**, resigned. **E. L. Johnson** has been appointed assistant engineer of materials and equipment tests, with the same headquarters, his former position—that of engineer of service tests—having been abolished and its duties taken over by **E. C. Hardy**, general inspector.

### Obituary

**Edmund D. Barbour**, secretary of the Chicago, Burlington & Quincy from August, 1878, to May, 1879, died in Boston, Mass., on March 2.

**Harry W. L. Porch**, master car builder of Swift & Co., Chicago, and president of the Car Foremen's Association of Chicago since 1923, died in that city on March 2.

**Milton S. Barger**, general treasurer of the New York Central Lines, died from an apoplectic stroke on the S. S. Berengaria on March 5, while on his way to Europe. Mr. Barger was born in New York in 1875 and was graduated from Harvard University in 1898. Immediately thereafter he entered the service of the New York Central Railroad as a clerk in the treasurer's office and in 1902 was appointed assistant treasurer. Four years later he was advanced to the position of treasurer of the Harlem River, a New York Central subsidiary, and in 1912 became treasurer of the New York Central, lines west of Buffalo. During federal control he was treasurer of all the New York Central Lines and on March 1, 1920, became general treasurer.